UNITED STATES DEPARTMENT OF THE INTERIOR
BLM, BOISE DISTRICT

EA # DOI-BLM-ID-B020-2009-0005-EA Title Page

Applicant (if any): **BLM Action**	Proposed Action: **Fuel Breaks to Maintain and Restore Sage-grouse Habitat**			EA No. **DOI-BLM-ID-B020-2009-0005-EA**
State: **Idaho**	County: **Owyhee**	District: **Boise**	Field Office: **Bruneau**	Authority: **NEPA, FLPMA**
Prepared By: BDO Fuels Team	Title: Bruneau Field Office Fuel Breaks for Sage-grouse Habitat Maintenance and Restoration.			Report Date: **June 25, 2012**

LANDS INVOLVED

Meridian	Township	Range	Sections	Acres
Boise	**9S**	**2E- 7E**	**Various, see maps**	420,391

Consideration of Critical Elements	N/A or Not Present	Applicable or Present, No Impact	Discussed in EA
Air Quality		X	
Areas of Critical Environmental Concern	X		
Cultural Resources			X
Environmental Justice (E.O. 12898)	X		
Farm Lands (prime or unique)	X		
Floodplains	X		
Migratory Birds			X
Native American Religious Concerns			X
Invasive, Nonnative Species			X
Wastes, Hazardous or Solid	X		
Threatened or Endangered Species			X
Social and Economic		X	
Water Quality (Drinking/Ground)	X		
Wetlands/Riparian Zones		X	
Wild and Scenic Rivers (Eligible)	X		
Wilderness Areas	X		

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1.0. Introduction

Sagebrush steppe habitat and the wildlife species that depend on it are now among the most at risk in North America (Knick et al. 2003, Pg. 2; Dobkin & Sauder 2004, Pg. 1; Meinke et al. 2009, Pg. 652). The loss of sagebrush habitat to wildfire, and subsequent dominance by invasive annual grasses, is one reason Greater sage-grouse is a candidate for listing under the Endangered Species Act (ESA) by the U.S. Fish and Wildlife Service (FWS) (2010a, Pg. 13931). Throughout the Snake River Management Zone for sage-grouse, which includes the Northern Great Basin subpopulation (NGB) (the project is in the NGB area), numbers of sage-grouse and acres of suitable habitat have declined, due in large part to wildfire and conversion of habitat to cheatgrass. Out of 19 potential threats, the *Conservation Plan for the Greater Sage-grouse in Idaho* (ISAC 2006, Pg. 4-2 & 3) identifies wildfire as the highest ranked threat in terms of relative risk to sage-grouse, based on conclusions by the Idaho Sage-grouse Science Panel. The rationale for this ranking was due to several factors including the potentially large-scale impacts that fire can have on already fragmented habitat, fire's link with expanding annual grasslands, climate change, and slowness of habitat recovery times. Similarly, the Owyhee Sage-grouse Management Plan (Owyhee County Sage-grouse Local Working Group 2004, Pg. 4) states "Fire is the greatest single factor responsible for the loss of sage-grouse habitat in southeastern Owyhee County.

For several years in their annual upland game reports, the Idaho Department of Fish and Game (IDFG) has identified wildfire as a threat to sage-grouse persistence in southwest Idaho. The 2010 report states, "Habitat management continues to be a major issue for the Department throughout the state. Wildfire frequency and size in the sagebrush steppe has increased, especially during the drought years, 1997-2007." For many years, IDFG has conducted telemetry studies in the Bureau of Land Management's (BLM) Bruneau Field Office (BFO), in order to "prioritize habitat protection and improve management efforts" (IDFG 2003-2010).

Based on years of collaborative data collection by BLM and IDFG personnel from lek counts, habitat evaluation, hunter harvest data, and telemetry studies, the southern portion of the BFO has been identified as a stronghold for Greater sage-grouse, and an area containing some of the last remaining, extensive intact areas of sage-grouse habitat in southwestern Idaho (IDFG 2003-2010; Idaho Sage-grouse Advisory Committee 2006). The 12-Month Findings for sage-grouse, published by FWS on March 23, 2010, states, "In addition, two strongholds of contiguous sagebrush habitat (the southwest Wyoming Basin and the Great Basin area straddling the States of Oregon, Nevada, and Idaho) contain the highest densities of males in the range of the species and are being impacted by direct habitat loss and fragmentation that will continue for the foreseeable future" (Wisdom et al. 2011 and Knick and Hanser 2011 Pg.13962; FWS Pg. 13988).

Key habitat and Priority habitat within the PA are closely aligned with 218,994 acres of Key and 190,276 acres of Priority. Key habitat is based on vegetation community and Priority habitat is based on areas of sage-grouse activity centers. These habitat classifications are discussed further in the wildlife section.

The sage-grouse stronghold located in the BFO is within the Dissected High Lava Plateau Level IV Ecoregion of Idaho (McGrath et al. 2002) (Map 1. Ecoregions). Ecoregions stratify the environment by their probable response to disturbance, and are critical for structuring and implementing ecosystem management strategies across geographical areas (McGrath et al. 2002). The Dissected High Lava Plateau is characterized by alluvial fans, rolling plains, and shear-walled canyons. Sagebrush grassland is common, with scattered woodland on rocky uplands (McGrath et al. 2002). This Ecoregion covers the southwestern portion of Idaho, including areas where large fires have recently occurred, such as the 2007 Murphy Fire.

Wildfire can lead to significant loss of sage-grouse habitat and present challenges to long-term sagebrush conservation (Miller et al. 2011; Connelly and Braun 1997; Connelly et al. 2000a; Connelly et al 2000b; Miller and Eddlemen 2001; and Knick and Hanser 2011). Restoration to pre-burn conditions in Wyoming and dry mountain big sagebrush habitats is extremely difficult, costly, and a process that can take years to accomplish (Pyke 2011). Nelle et al. (2000) found that, even in mountain big sagebrush, burning had a long-term negative impact on nesting habitat; sagebrush required over 20 years of post-burn growth for canopy cover to become sufficient for nesting. Burning creates post-fire conditions favorable to annual grasses, like cheatgrass, and potential for an annual grass dominated community. Post-fire dominance by cheatgrass and other invasive annuals also creates a plant community that will burn more frequently than sagebrush dominated systems. In many areas throughout the West, the fire-return intervals have been reduced to as few as two to four years because of cheatgrass dominance (Whisenant, 1990), particularly in former Wyoming big sagebrush and salt desert shrub communities. It is difficult, costly, and often requires multiple treatments to restore an area to sagebrush after annual grasses have become established (Connelly et al. 2004; Pyke 2011).

The 2010 FWS12-Month Findings for sage-grouse identifies the increasing risk to remaining intact sage-grouse habitat from wildfire and the value of conducting fuels management.

1. "Further, many climate scientists suggest that in addition to the predicted change in climate toward a warmer and generally wetter Great Basin, variability of interannual and interdecadal wet-dry cycles will increase and likely act in concert with wildfire, disease, and invasive species to further stress the sagebrush ecosystem (Neilson et al. 2005, p. 152). The anticipated increase in suitable conditions for wildfire will likely further interact with people and infrastructure. Human-caused wildfires have reportedly increased and been shown to be correlated with road presence (Miller et al. 2011). Given the popularity of off-highway vehicles (OHV) and the ready access to lands in the Great Basin, the increasing trend in both wildfire ignitions by people and loss of habitat will likely continue. While multiple factors can influence sagebrush persistence, wildfire is the primary cause of recent large-scale losses of habitat within the Great Basin, and this stressor is anticipated to intensify" (p.13934).

2. "The loss of habitat due to wildfire is anticipated to increase due to the intensifying synergistic interactions among fire, people, invasive species, and climate change" (Ibid).

3. "Targeting the protection of important sage-grouse habitats during wildfire suppression and fuels management activities could help reduce loss of Key habitat due to wildfire if directed through a long-term, regulatory mechanism" (p.13977).

4. "A regulatory mechanism that requires BLM staff to target the protection of Key sage-grouse habitats during wildfire suppression or appropriate fuels management activities could help address the threat of wildfire in some situations. We recognize the use of IMs for this purpose, including both at the national and State level (Idaho) (BLM 2008) and 2008k); however, a long-term mechanism is necessary given the scale of the wildfire threat and its likelihood to persist on the landscape in the foreseeable future" (p.13979).

5. "Barring alterations to the current wildfire pattern, as well as the difficulties associated with restoration, the concerns presented by this threat will continue and likely strongly influence persistence of the greater sage-grouse, especially in the western half of its range within the foreseeable future" (p.13935).

In the BFO, risk of large scale wildfire is greatest during late summer when thunderstorms, with associated lightning, are common. When lightning-ignited wildfires start in the BFO, there are usually multiple ignitions across the Boise District, as well as neighboring BLM and Forest Service districts. The BLM's policy of prioritizing wildfire suppression efforts, in order of importance, is: 1) life, 2) property, and 3) natural resources.

When multiple wildfires occur, firefighting resources are prioritized according to this hierarchy. The Boise District has a historically high level of wildfire activity, burning approximately 88,196 acres a year and averaging 107 wildfires per fire season, over a 25-year period (1985 - 2009) (Boise BLM data). In high fire activity years, there have been as many as 166 wildfires, with 153,539 acres burned (Ibid).

During multiple wildfire event days, fires involving life and property issues will receive higher priority than natural resource based ones. When this happens, securing sufficient firefighting resources in a timely manner is often a challenge because, in many instances, there are simply not enough to go around. Under these circumstances, large areas of unburned sage-grouse habitat, such as those occurring in the BFO, are most at risk to large scale wildfire; strategically placed fuel breaks would be most advantageous then. Indeed, such was the case with the 2007 Murphy Complex and Tongue Complex fires, and 2010 Long Butte and Crowbar fires.

Implementation of a network of strategically placed, roadside fuel breaks would help achieve the following management objectives:

- Protect important habitat for Southwest Idaho's densest sage-grouse population and sagebrush-obligate species
- Reduce the probability of wildfires consuming large acreages across the BFO
- Enhance firefighter capabilities and management options with fewer firefighting resources.
- Increase the number of firefighter options to safely engage wildfires in a remote location, i.e., fuel breaks can serve as anchor points from which to initiate burn-out operations to reduce potential wildfire spread.

- Minimize acreage where sagebrush cover is lost and at risk of conversion to annual grassland from repeated wildfire
- Reduce the cost of wildfire rehabilitation by reducing their size

1.1 Purpose and Need for Action

To address the threat of wildfire in the BFO, the Boise District BLM proposes to develop a strategic fuel breaks system or network to maintain valuable Greater sage-grouse (sage-grouse) habitat for the NGB population, while decreasing future losses. The proposed fuel breaks' development is similar to habitat protection projects being completed in eastern Idaho, Nevada, and eastern Oregon (USDI BLM NV 2010; USDI BLM OR 2009; USDI BLM ID 2003).

The purpose of the proposed action is to maintain and protect, from wildfire, sage-grouse and other wildlife habitat within the project area (PA) (Map 2. Project Vicinity) and provide a greater margin of safety for fire fighters. In the 1983 Bruneau Management Framework Plan (MFP), Objective WL: 2 states that BLM should manage sensitive species habitat to maintain or increase potential populations. Increased habitat protection, from wildfire, is needed because it is considered the highest threat to sage-grouse persistence in Idaho, as well as across much of the arid lands in the western United States (FWS 2010a, 13935; ISAC 2006, Pg. 4-2 & 3).

The FO's southern portion was identified, by the Oregon/Idaho/Nevada Cooperative Shrub-Steppe Restoration Partnership and BLM's Healthy Land Initiative Conservation Policy Team (USDI 2010), as being in a high risk category for large-scale wildfire (Map 3. Large Fire Risk). The PA is on the northern edge of the stronghold for sage-grouse (Map 4. Sage-grouse Key and Priority Habitat), and important habitat for many wildlife species, including sagebrush obligates (ISAC 2006). Depending on weather, fuel conditions, availability of firefighting resources, and other factors, wildfires can quickly affect hundreds of thousands of acres in a single fire season. The importance of the PA habitat, the area's remoteness, and the potential for few available resources and long firefighter response times necessitate that strategic measures be undertaken should wildfires, especially multiple starts, occur. Proactive wildfire management strategies, that reduce large wildfire risk and maximize the potential for effective suppression, are necessary to prevent further degradation and habitat loss for sage-grouse and other wildlife species in the BFO (Ibid).

Proactive fuels management, such as fuel breaks, would also reduce impacts from suppression efforts. Dozers are the most effective tool in containing wildfire in sagebrush steppe habitat. However, dozer lines are often constructed in steep terrain, which can lead to increased soil erosion. They can also destroy soil crusts, increase susceptibility to weed invasion, and may be established several miles across the landscape in and around the burned area. During the 2010 and 2011 fire seasons, over one-hundred thousand acres of sagebrush habitat was lost in the BFO, and 82 miles of dozer line were constructed (Table 1). The spread of invasive annual grasses and forbs, as well as noxious weeds, in burned areas and the miles of dozer line, established during suppression efforts from the past two years alone will be difficult to monitor and manage.

Table 1. Number of acres burned and miles of dozer line constructed during the 2010 and 2011 fire seasons in the BFO

2010 Bruneau FO Wildfires	Acres Burned	Miles of Dozer Line
Blacksheep	4,337	13
Crowbar	29,500	12
Notsohot	19	0
Pot	722	3.5
Rizzi	10	0
Shugga	120	1
Sugar Valley	166	3
Table	56	1
Turn	590	5
	Total 2010 = 35,520	**Total 2010 = 38.5**
2011 Bruneau FO Wildfires	**Acres Burned**	**Miles of Dozer Line**
Angle	78	3
Big Hill	67,068	39.5
Castle	33	1
Deep	70	0
	Total 2011 = 67,248	**Total 2011 =43.5**
Total for 2010 and 2011	**102,768**	**82**

1.2 Decision(s) to be Made

The BFO Manager will sign any decisions resulting from this EA. The decision to be issued is whether or not to maintain existing, and develop new fuel breaks to facilitate the maintenance, protection, and restoration of sage-grouse habitat, and provide suitable areas for firefighters to safely and effectively engage wildfire along approximately 145 roadside miles within the PA.

1.3 Summary of Proposed Action

The proposed action would develop a network of fuel breaks to restore and maintain sage-grouse habitat and enhance firefighting capability. A total of approximatey 185 roadside miles, within the 420,391 acre PA, was evaluated based on vegetation community and plant growth characteristics, and suitability of a road for firefighting and heavy equipment access. Of those road miles, 145 were identified for development or maintenance of fuels breaks. Fuel breaks would be created and maintained using a combination of treatments, including mowing roadside shrubs, application of BLM-approved herbicides, and rangeland seeding (Table 2).

Mowing roadside vegetation would occur on approximately 92 miles and be 100 feet wide (i.e., 50 feet on each side or 100 feet on one). There is no difference in the percentage of acres of Key or Priority habitat impacted by the proposed action. Mowing in Key habitat would impact 1006 acres of roadside shrubs or 0.5% (rounded from 0.45%) of the Key Habitat in the PA. In habitat classified as Priority, mowing would impact 900 acres of roadside shrubs or 0.5% (rounded from 0.47%) of the Priority habitat in the PA. Fifty-three miles were identified for greenstrip development or maintenance in areas that have previously burned, some multiple times, and are under threat of re-burn due to presence cheatgrass.

For this project, greenstrips are defined as areas along roads where the vegetation is low growing and/or stays green late into summer. Low growing vegetation reduces potential flame lengths,

and green vegetation is less flammable. Developed and existing greenstrips would be up to 300 feet wide (i.e., 150 feet on each side or 300 feet on one). Forty-two miles of roads were identified as existing greenstrips because of established seedings or suitable native vegetation. An existing greenstrip indicates that the roadside vegetation consists of mostly grasses. Greenstrips would be maintained and improved by applying herbicide and/or seeding. Eight miles of greenstrip would be developed in areas burned during the 2011 Big Hill Fire, which were previously in Key habitat. Three miles identified as perennial grassland would need to be developed by removing some small sagebrush patches (less than 20 acres total) and seeding effective greenstrip vegetation. No greenstrips would be developed in Key habitat but 1.8 miles would be developed in Priority habitat.

Imazapic or other suitable herbicides that may be approved for BLM use during the life of this NEPA would be applied in areas where cheatgrass is encroaching into greenstrips and in mowed areas with a moderate to thick density of cheatgrass in the understory. Herbicide would also be used where monitoring identifies increased levels of cheatgrass and weeds in treated areas. Existing vegetation along proposed treatment roads, including the presence and density of cheatgrass, have been field verified as suggested in the Rapid Ecological Assessment (REA) of the Northern Basin and Range and Snake River Plain (USDI 2010).

The annual treatment target would be 50 to 75 miles of roadsides. The proposed action may take up to five years to implement. Maintenance of mowed fuel breaks would be required 7-10 years after initial treatment. Maintenance needs of greenstrips would be identified through monitoring and completed, as needed.

Table 2. Proposed action: Miles of roadsides to be treated and the number of acres impacted.

Treatment	**Proposed Action**
Mowing	92 Miles/1,115 Acres
Greenstrip Maintenance	42 Miles/1,527 Acres
New Greenstrip	11 Miles/400 Acres
Total Miles/Acres	145 Miles/3,042 Acres

1.4 Location and Setting

The project area (PA) is located in southwestern Idaho, extending from approximately 17 miles south of the community of Bruneau to Wickahoney Road, west side of State Highway (SH) 51 and Blackstone Reservoir Road, east side of SH 51 (Map 2. Bruneau Fuel Breaks). It is bounded to the east by the Bruneau Canyon and the west by Little Jacks Creek watershed. The PA encompasses 420,391 acres.

Approximately 95 % of the project lies within the Dissected High Lava Plateau Level IV Ecoregion of Idaho (McGrath et al. 2002) (Map 1. Ecoregions). The Plateau is characterized by alluvial fans, rolling plains, and shear-walled canyons. Sagebrush grassland is common, with scattered woodland on rocky uplands (McGrath et al. 2002).

Annual moisture varies from as low as six inches at lower elevations to over 16 inches in higher areas. Most precipitation occurs in late fall through early spring. Late summer is normally the driest period with annual monsoonal or dry thunderstorms. Temperature extremes vary from the

high 90s in July/August to sub-zero in December/January. Temperatures are generally moderate, but day and night temperatures can vary as much as 50 degrees.

1.5 Conformance with Applicable Land Use Plans, Statutes, Regulations, Other Management Requirements, and Applicable Conservation Direction

The project was developed from management direction and objectives identified in the 1983 Bruneau Management Framework Plan (MFP); Conservation Plan for the Greater Sage-grouse in Idaho (ISAC 2006); BLM Instruction Memorandum (IM) 2011-138, Sage-Grouse Conservation Related to Wildfire and Fuels Management (2010); BLM IM 2012-043, Greater Sage-Grouse Interim Management Policies and Procedures (2011a); BLM IM 2012-044, National Greater Sage-Grouse Land Use Planning Strategy (2011b); Owyhee County Sage-grouse Local Working Group's Plan (2004); the Migratory Bird Treaty Act of 1918, as amended and Executive Order 13186; BLM Manual Handbook H-8120-1; National Historic Preservation Act of 1966, as amended; Archaeological Resources Protection Act of 1979; and Native American Graves Protection and Repatriation Act of 1990, as amended; American Indian Religious Freedom Act of 1979 (AIRFA); Executive Order 13007-Indian Sacred Sites; and Southwestern Idaho BLM Fire Management Plan (2011).

Bruneau Management Framework Plan
The project is in conformance with management direction established in the Bruneau MFP, approved on March 30, 1983. Although fuel breaks are not specifically mentioned, the proposed action supports the following objectives:

- Manage sensitive species habitats to maintain existing or potential populations (WL-2).
- Manage upland game and waterfowl habitats in the BPU to increase populations of these highly desirable species (WL-4)

Conservation Plan for the Greater Sage-grouse in Idaho
The Idaho BLM manages sage-grouse habitat in accordance with the Idaho Sage-grouse Advisory Committee's 2006 Conservation Plan for Greater Sage-Grouse (Conservation Plan). Idaho BLM IM 2009-006 (extended to September 2011), in part, directs managers to utilize this plan as a reference resource to support and guide NEPA analyses. The 2006 plan's primary purpose is to maintain, improve, and, where possible, increase sage-grouse populations and habitats in Idaho, while considering the predictability and long-term sustainability of a variety of land uses. The comprehensive plan includes population and habitat objectives, and conservation measures to address identified threats, so the overall objectives can be achieved.

During the plan's preparation, wildfire was identified by the Idaho sage-grouse Science Panel as the highest ranked threat to the bird and its habitat in the state. Consequently, it provides a number of conservation measures concerning wildfire suppression, planning, education, and restoration. One aspect of the wildfire conservation measures' goal is: *To reduce the risk, incidence and extent of wildfires within Sage-grouse Planning Areas.*

On page 4-18 of the Conservation Plan, Measure 6 recommends to land managers to: *Strategically place pretreated strips/areas (e.g., mowing, herbicide application, strictly managed grazing strip, etc.) to aid in controlling wildfire should wildfire occur near critical habitats*.

The BLM Washington Office IM 2011-138; Sage-Grouse Conservation Related to Wildfire and Fuels Management

The purpose of IM 2010-138 is to provide guidance and resources to augment protection of sage-grouse habitats and populations on BLM jurisdictions. Within the guidance provided, the IM identifies Best Management Practices (BMPs) applicable to fuels management. Several of the BMPs are directly incorporated into this project, such as:

- Strategically place and maintain pretreated strips/areas (e.g. mowing, herbicide, and strictly managed grazed strips) to aid in controlling wildfire should wildfire occur near key habitat or important restoration areas (such as where investments in restoration have already been made).
- Where applicable, design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit sage-grouse habitat.
- Design vegetation treatments in areas of high fire frequency to facilitate firefighter safety, reduce the risk of extreme fire behavior, and reduce the risk and rate of fire spread to key and restoration habitats.
- Where appropriate, ensure that treatments (strips) are configured in a manner that promotes use by sage-grouse.
- Where applicable, incorporate roads and natural fuel breaks into fuel break designs.
- Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
- Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM and/or state wildlife agency biologists, and that treatment acreage is conservative in the context of surrounding sage-grouse seasonal habitats and landscape.

BLM Washington Office IM 2012-043; Greater Sage-Grouse Interim Management Policies and Procedures

This IM provides interim conservation policies and procedures to the BLM field offices to be applied to ongoing and proposed authorizations and activities that affect the Greater Sage-Grouse *(Centrocercus urophasianus)* and its habitat while BLM and USFS land use plans are being amended during the next two to three years. Interim conservation policies and procedures for Wildfire Suppression and Fuels Management were incorporated into this EA include:

- Threatened, endangered, and sensitive species (including sage-grouse) and associated habitats will continue to be a high natural resource priority for National and Geographic Multi-Agency Coordination Groups, whose purpose is to manage and prioritize wildland fire operations on a national and geographic area scope when fire management resource shortages are probable.
- Greater Sage-Grouse protection and habitat enhancement is a high priority for the fire management program. A full range of fire management activities and options will be utilized to sustain healthy ecosystems (including Greater Sage-Grouse habitats) within

acceptable risk levels. Local agency administrators and resource advisors will convey protection priorities to incident commanders.
- Comply with the policies established in WO-IM-2011-138 (Sage-Grouse Conservation Related to Wildland Fire and Fuels Management) or successor guidance, regarding suppression operations and fuels management activities.

BLM Washington Office IM 2012-044; National Greater Sage-Grouse Land Use Planning Strategy

This Instruction Memorandum (IM) provides direction to the Bureau of Land Management (BLM) for considering Greater Sage-Grouse conservation measures identified in the Sage-Grouse National Technical Team's - *A Report on National Greater Sage-Grouse Conservation Measures* during the land use planning process that is now underway in accordance with the 2011 *National Greater Sage-Grouse Planning Strategy*.

- Do not reduce sagebrush canopy cover to less than 15% (Connelly et al. 2000, Hagen et al. 2007) unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority sage-grouse habitat and conserve habitat quality for the species. Closely evaluate the benefits of the fuel break against the additional loss of sagebrush cover in the EA process.
- Apply appropriate seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present in a priority area.
- Allow no treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk around or in the winter range and will maintain winter range habitat quality.
- Monitor and control invasive vegetation post-treatment.
- Rest treated areas from grazing for two full growing seasons unless vegetation recovery dictates otherwise (WGFD 2011).
- Require use of native seeds for fuels management treatment based on availability, adaptation (site potential), and probability of success (Richards et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat objectives (Pyke 2011).
- Design post fuels management projects to ensure long term persistence of seeded or pretreatment native plants. This may require temporary or long-term changes in livestock grazing management, wild horse and burro management, travel management, or other activities to achieve and maintain the desired condition of the fuels management project (Eiswerth and Shonkwiler 2006).
- Design fuels management projects in priority sage-grouse habitat to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design (Launchbaugh et al. 2007).

Owyhee County Sage-grouse Local Working Group's Plan

The Owyhee Local Working Group (LWG) identified wildfire as the greatest single factor responsible for the loss of sage grouse habitat in southeastern Owyhee County. Their plan states: "Many of the wildfires occurred in the more arid Wyoming big-sagebrush habitat type, covered large areas, and were often followed by increases in annual grasses, especially cheatgrass. There is very limited opportunity to restore these areas to their former state and they essentially represent a stable state that will not change without substantial human disturbance intervention.

The increase in fine fuel in the form of cheatgrass has made these habitats more prone to fire and increased wildfire frequencies that result in loss of shrubs, especially sagebrush. Sagebrush seed is wind-dispersed and 95% of sagebrush seed is deposited within 30 feet of the parent plant, which largely precludes natural reseeding of large complete burns".

To reduce the likelihood of losing more sage-grouse habitat to wildfire, the Owyhee LWG's plan suggests, among other things, *to develop greenstrips (strips of fire-resistant vegetation planted to slow wildfires) and other fuel breaks* (emphasis added) (2004).

Southwestern Idaho BLM Fire Management Plan

The Southwestern Idaho BLM Fire Management Plan, updated in 2011, provides direction, priorities, and objectives for wildfire, emergency stabilization and rehabilitation, hazardous fuels reduction, and community assistance across the greater southwestern Idaho area. The proposed action is within the Grasmere Fire Management Unit (FMU), which is ranked as high priority for wildfire suppression and emergency stabilization/restoration efforts and moderate priority for hazardous fuels treatments and community assistance, relative to other areas within the Boise District.

In addition to management direction for greater sage-grouse, the proposed action is also in conformance with other laws and management direction, including cultural resource laws and executive orders, and the Migratory Bird Treaty Act of 1918, as amended, and Executive Order 13186.

Cultural Resource Laws and Executive Orders

The BLM is required to consult with Native American tribes to "help assure (1) that federally recognized tribal governments and Native American individuals, whose traditional uses of public land might be affected by a proposed action, will have sufficient opportunity to contribute to the decision, and (2) that the decision maker will give tribal concerns proper consideration" (U.S. Department of the Interior, BLM Manual Handbook H-8120-1). Tribal coordination and consultation responsibilities are implemented under laws and executive orders that are specific to cultural resources which are referred to as "cultural resource authorities," and under regulations that are not specific which are termed "general authorities." Cultural resource authorities include: National Historic Preservation Act of 1966, as amended (NHPA); Archaeological Resources Protection Act of 1979 (ARPA); and Native American Graves Protection and Repatriation Act of 1990, as amended (NAGPRA). General authorities include: American Indian Religious Freedom Act of 1979 (AIRFA); National Environmental Policy Act of 1969 (NEPA); Federal Land Policy and Management Act of 1976 (FLPMA); and Executive Order 13007-Indian Sacred Sites. The proposed action is in compliance with the aforementioned authorities.

Southwest Idaho is the homeland of two culturally and linguistically related tribes: the Northern Shoshone and Northern Paiute. In the latter half of the 19th century, a reservation was established at Duck Valley on the Nevada/Idaho border west of the Bruneau River. The Shoshone-Paiute Tribes residing on the Duck Valley Reservation today actively practice their culture and retain aboriginal rights and/or interests in this area. The Shoshone-Paiute Tribes assert aboriginal rights to their traditional homelands as their treaties with the United States, the

Boise Valley Treaty of 1864 and the Bruneau Valley Treaty of 1866, which would have extinguished aboriginal title to the lands now federally administered, were never ratified.

Consultation has occurred with the Shoshoni-Paiute Tribes. During the consultation the findings of cultural inventories were shared with the Tribes. The Tribes expressed the importance of sage-grouse to their culture and their concern for proper management of sage-grouse and their habitat. The threat of wildfire is a common concern between the tribes and BLM. They felt the project is worth pursuing and wanted to be updated as progress occurs.

Other tribes with ties to southwestern Idaho include the Bannock and Nez Perce. Southeast Idaho is the homeland of the Northern Shoshone and Bannock Tribes. In 1867, a reservation was established at Fort Hall in southeastern Idaho. The Fort Bridger Treaty of 1868 applies to BLM's relationship with the Shoshone-Bannock Tribes. The northern part of the BLM's Boise District was also inhabited by the Nez Perce Tribe. They signed treaties in 1855, 1863, and 1868. The BLM considers off-reservation, treaty-reserved fishing, hunting, gathering, and similar rights of access and resource use on the public lands it administers for all tribes that may be affected by a proposed action.

The Migratory Bird Treaty Act of 1918, as amended, and Executive Order 13186
Executive Order 13186 identifies the responsibilities of Federal agencies to protect migratory birds. Federal agencies were ordered to develop a Memorandum of Understanding MOUs with the FWS. The Order directs that pursuant to its MOU, each agency shall….. in harmony with agency missions:

- …. avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- restore and enhance the habitat of migratory birds, as practicable;
- prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable;
- ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

1.6 Scoping and Development of Issues

Internal and public scoping has been ongoing since the initial scoping package was released in 2008. Several meetings, with staff from the Bruneau Field Office (BFO) and Boise District Fuels, were held to create the proposed alternative. Meetings with the U.S. Fish and Wildlife Service (FWS) and Idaho Department of Fish and Game (IDFG) also occurred.

A scoping package was sent to all interested parties on November 5, 2008. The package provided a general description of the proposed action, design criteria, and map showing the project area's outline. Comments were received from IDFG, Western Watersheds Project (WWP), and the Shoshone-Paiute Tribes. A field tour was conducted to discuss resource issues "on the ground" on May 9, 2009; attendees were IDFG and the Shoshone-Paiute Tribes. A separate field tour was attended by BLM personnel and a representative from WWP on June 26, 2009. Potential relevant issues from comments received include:

- Mowing along roads could enhance palatable vegetation growth that would attract livestock and pose a hazard to motorists. However, the project is in State of Idaho designated and signed "open range". Motorists and visitors to this area are informed by road-signs and many are accustomed to livestock being near and on the roads, especially dirt roads. Motorists would therefore not be at any more risk in this area than on any road in the Field Office where motorists are responsible for avoiding cattle. While BLM permits cattle grazing, it has no liability in cases of vehicle/cattle collisions.
- Fuel break development and maintenance could result in:
    - Expansion of cheatgrass and noxious weeds
    - Impacts to sagebrush obligate species from altered habitat
    - Impacts to sage-grouse including habitat fragmentation, lek disturbance, and habitat loss

Since 2008 when comments were originally solicited, the proposed treatment area has become changed considerably and does not encompass the entire stronghold area. These PA changes were made to address concerns expressed by IDFG and FWS. Their concerns included spread of invasive annuals and noxious weeds, alteration of sagebrush habitat, and fragmentation of habitat. Both IDFG and FWS indicated that they would prefer to see the implementation of fuel breaks across a smaller area and outside of the area south of Wickahoney Road which is where the greatest number of leks is located. The sage-grouse biologist from IDFG does not support the idea that the area south of Wickahoney Road will ever experience a large scale fire (IDFG Letter, 2009, Project Record). The FWS would like to start small and document the effectiveness of fuel breaks and monitor the control of noxious weeds and invasive annuals. In an effort to work collaboratively, BLM acknowledged their input by making changes to the project.

2.0. Description of the Alternatives

Three alternatives have been analyzed: Alternative A – No Action, Alternative B – Proposed Action, and Alternative C – Greenstrip Alternative (Table 3).

Table 3. Miles and roadside acres impacted by alternative

Treatment	Alternative A No Action	Alternative B – Proposed Action	Alternative C – Greenstrip Alternative
Mowing	0	92 Miles/1,115 Acres	0
Greenstrip Maintenance	0	42 Miles/1,527 Acres	42/1,527 Acres
New Greenstrip	0	11 Miles/ 400 Acres	103 Miles/3,745 Acres
Total Miles/Acres	0	145 Miles/3,042 Acres	145 Miles/5,272 Acres

2.1 Alternative A – No Action/Continue Current Management

Under this alternative, a fuel breaks network would not be created and existing greenstrips would not be improved or maintained. Fire suppression personnel would utilize existing paved and county roads and natural topographic features to hold and control wildfire.

2.2 Alternative B – Proposed Action –Mowing and Greenstripping Fuel Breaks

A roadside fuel breaks network, to restore and maintain important sage-grouse habitat in the BFO, would be developed. Fuel breaks would be established next to roads to augment the road surface effects in reducing fuel continuity. Roads were selected for treatment if vegetation conditions met specific criteria, identified below, and the road's suitability for firefighting and heavy equipment access. Roads identified for treatment were evaluated during fall 2010 and spring 2011. There were 185 miles of roadsides evaluated; 145 were identified for treatment (Map 6). Greenstrips would be up to 300 feet wide (i.e., 150 feet on each roadside or 300 feet on one side) along roads; mow strips would be up to 100 feet wide (i.e., 50 feet on each side or 100 feet on one) along roads. Boise District fire operations experts identified 50 feet as the minimum width to improve firefighter safety during suppression efforts while trying to minimize impacts to shrub habitat from proposed treatments. The greenstrips are in areas that already do not have sagebrush and in many cases have undergone re-burns in the recent past.

2.2.1 Mowing Fuel Breaks

The decision of how and which roads to treat was determined by evaluating vegetation characteristics across a network of roads within the PA. Roads were evaluated against criteria that helped identify where fuel breaks are most needed, and the appropriate treatments necessary to slow wildfire spread and reduce flame lengths. Modifying wildfire behavior in such a way both increases the safety margin for firefighters and reduces the number of firefighting resources needed for successful suppression. The criteria, developed by an interdisciplinary team, are identified below.

Criteria that would lead to a decision to mow roadside vegetation, where possible:

> Shrubs greater than 15 inches tall of moderate to thick density (greater than 15% cover), with a moderate to thick understory of mid-stature or taller vegetation more than 4 inches tall) **or** with a moderate to thick understory of cheatgrass.

Mowing under this scenario would be followed up with herbicide treatments.

Criteria that would lead to a decision to **not** mow roadside vegetation include the following:

> Shrubs are less than 15 inches tall **or** moderate to sparse density shrubs greater than 15 inches tall that has a sparse (less than 15% cover) perennial vegetation understory or an understory of low stature vegetation (less than 4 inches) or grasslands with no shrubs.

The height of 15 inches for vegetation was used to maintain low sagebrush which generally does not grow taller than that (Goodrich 2005). Low sage was not targeted for treatment because it normally does not carry fire effectively, so it burns in small patches, and its low stature makes flame lengths manageable.

The criteria were developed this way because the density of sagebrush and herbaceous understory composition influences the likelihood of fire moving into the sagebrush crown and the continuity and rate of fire spread. A moderate to thick understory of mid-stature herbaceous

plants (such as cheatgrass) increases wildfire's ability to spread rapidly through a sagebrush stand.

The 145 miles proposed for treatment include 11 miles of greenstrip development, 42 of existing greenstrip maintenance, and 92 miles of mowing. The 42 miles of greenstrips, identified for future maintenance, already exist from established seedings or the presence of suitable native vegetation, mostly Sandberg bluegrass.

Mowed fuel breaks would be created using a mower attached to a rubber-tired tractor (Figure 1), and sagebrush would be mowed to a height of 6"-12". Mowing only one side of a road could occur where only one side meets the mowing criteria or if there is a restriction, such as a wilderness boundary or steep slopes. Mowing would be completed when fall weather reduces fire risk. Implementation could occur September through February as long as conditions are appropriate (i.e., soils are not saturated). Dalke et al. (1963) indicated that in the Big Desert area of Idaho, male lek attendance begins in March and increases rapidly during the first two weeks of April. Activity restrictions near leks normally begin March 15 at lower elevations in Idaho (Idaho BLM IB 2010-39). Ceasing project implementation before March provides a longer buffer and addresses the Tribes concerns about sage-grouse congregating on leks before the March 15 deadline that is normally used.

Figure 1. Rubber-wheeled tractor and rotomower establishing a fuel break on the Idaho Falls District.

Maintenance mowing would occur once sagebrush has re-grown to an average height greater than 15 inches. To lengthen the time between mowing, mow strips that have between 10%-15% sagebrush cover, from seed dispersal, may be treated with tebuthiuron at a low rate to control sagebrush proliferation. Tebuthiuron (a chemical on the BLM-approved list of herbicides; BLM 2007) would be applied in pellet form directly to sagebrush stands using an ATV/UTV-mounted applicator.

Mow strips that show the establishment or proliferation of annual grasses (e.g. cheatgrass) will be treated with the herbicide imazapic, as needed. These mow strips would be monitored annually, for the first three years following treatment, and re-treated as necessary to maintain suitable vegetative conditions in the fuel breaks.

2.2.2 Greenstrips

Greenstrips would be developed along 11 miles of roadside. Three of those are in an area where cheatgrass is mostly north of the existing road and could gain greater dominance on the southern side of the road if a fire burns the area. The three miles would require removing some scattered sagebrush, but no more than 20 total acres. Existing vegetation would be removed by prescribed fire, plowing, mowing or a combination of methods. The other eight miles of proposed greenstrips are within the 2011 Big Hill Fire perimeter; negligible sagebrush loss would result. Greenstrips would be developed using a rangeland drill for seeding, and herbicide treatment. Maintenance of greenstrips could include re-seeding, herbicide application or a combination of both.

Greenstrips/seedings that currently exist along 42 miles of roadsides would be enhanced and maintained. Areas of crested seedings would be seeded with suitable greenstrip vegetation. Areas where vegetation consists mostly of Sandberg bluegrass would be maintained and enhanced by treating cheatgrass with imazapic. Many fires have occurred in the proposed greenstrip areas; the threat of re-burn is the primary concern to land managers. Native species would be emphasized for seeding per IM 2010-149, Sage-grouse Conservation Related to Wildfire and Fuels Management; however, certain non-native species or cultivars may be better suited to compete with invasive annuals. Preferred greenstrip species would be low stature plants, that stay green late into fire season, and appropriate for the ecological site. Seeding would be completed using a rangeland drill. Follow-up herbicide treatment would occur as necessary to maintain the integrity of established greenstrips. Forage kochia (*Kochia prostrata*) would not be seeded into greenstrips within a ½-mile of playas, as it would compete with Davis' pepperweed (*Lepidium davisii*); an Idaho BLM Sensitive Species that inhabits these playas.

Areas excluded from treatment include a 100 foot buffer adjacent to playas, wet meadows, and riparian greenlines, 50 feet from occupied pygmy rabbit burrows, unevaluated or significant archeological sites in proposed greenstrips only, or any area that does not meet the above mowing criteria. Map 6 shows locations of proposed mowing.

No mowing or greenstripping would occur after February to prevent disturbance to lekking sage-grouse. Jenni and Hartzler (1978) found that sage-grouse males began attending leks in early March in Montana, and Dalke et al. (1963) indicated that, in the Big Desert area of Idaho, male lek attendance begins in March and increases rapidly during the first two weeks of April. According to Idaho's Instruction Bulletin (IB) 2010-039, activity restrictions near leks normally begin March 15 at lower elevations.

Livestock use would be restricted from greenstrips until the seeded vegetation becomes well established. Livestock grazing would be controlled through deferred use, construction of temporary fencing or salting and watering in a disturbed site at least ½ mile away from developing greenstrips.

Greenstrips would be monitored annually for weeds and seeding success, and re-treated, as necessary, until the desired greenstrip vegetation becomes established. Once desired vegetation is established, monitoring would occur on a three-year rotation to determine maintenance needs.

Standard Operating Procedures/Design Criteria for Alternative B (Proposed Action)

Recreation/Wilderness

- No mowing would occur along any designated Scenic Byway.
- No mowing would occur on roads that are bordered on both sides by wilderness.
- In areas where a road borders wilderness on one side, no mowing would occur on the wilderness side, but mowing could occur on the opposite roadside.

Habitat Protection

- No mowing or drill seeding would occur when soils are saturated and easily rutted.
- No mowing or greenstripping would occur within the wetland or riparian zones' greenline (area where riparian vegetation species exist).
- Mowing and seeding equipment, including vehicles and trailers, would be washed, prior to implementation, to remove seeds to reduce potential weed spread.
- Any noxious weed populations would be treated prior to fuel break development or avoided to reduce the chance of spread.
- Proposed routes would be surveyed for special status plants; any populations would be avoided.
- Mowing would not occur within 100 feet of playas, to protect the integrity of playas for Davis' pepperweed habitat. Greenstrips within ½ mile of them would not be seeded with forage kochia to protect habitat from encroachment.
- No treatment would occur within 50 feet of occupied pygmy rabbit burrows (Wilson et al. 2011).
- Potential pygmy rabbit habitat in the PA would be surveyed one week prior to treatment to identify new burrows.
- No treatments would occur after February to avoid conflict with sage-grouse lek activity and to protect nesting migratory landbirds. Mowing would occur from fall when there is reduced danger of fire through February.
- Any temporary fence constructed would be at least 1.25 miles away from active leks and marked in accordance with current marking specifications identified in IM No. ID-100-2011-001 to reduce collisions by sage-grouse and other wildlife species and guidelines specified in BLM IM 2012-043.

Noxious Weed and Cheatgrass Control, Fuel Break Maintenance

- Treatments would include use of approved BLM herbicides, such as imazapic for cheatgrass infestations and tebuthiuron for fuel break maintenance/sagebrush control.
- Application of herbicides would follow BLM best management practices and label specifications.
- Herbicide would be applied using a truck, tractor or ATV mounted sprayer, depending on the treatment zone's width.

- Herbicide may be applied before or after mowing or seeding, depending on the target species and type of herbicide.

Livestock Management

- To reduce disturbance while greenstrips become established, temporary livestock watering and salting may be established in a disturbed site or cattle would be moved to areas with existing watering sites at least ½ away from newly seeded areas.
- New temporary watering sites would have appropriate clearances completed.
- An effort would be made to develop greenstrips during any planned deferred/rotational grazing schedules, where practical.
- If grazing deferment cannot be scheduled into the seeding plan, then temporary fencing may be installed to protect the seeding until objectives have been met.
- Livestock trailing on routes in or adjacent to vegetation treatments (e.g., fuels projects or restoration treatments) will be kept on[1] the route until the treatment objectives are met, unless the specific trailing event would not conflict with treatment objectives.

[1] "Keep on route" indicates livestock should be actively herded to stay on the route; any strays are to be kept to within 50 feet of the route.

Cultural Resources

- Project areas, which include greenstrips, temporary fences or placement of salt blocks and water troughs, would have the appropriate cultural resource inventories done prior to project implementation.
- Significant or unevaluated cultural resource sites may be avoided, dependent upon proposed vegetative treatment type, or project impacts would be mitigated to an acceptable level (i.e., use of backpack sprayers over mechanical methods to spray herbicides on invasive annuals).
- If cultural resources are discovered during project implementation, activities shall cease in the discovery area, and the Project Coordinator or Authorized Officer shall be notified immediately (NOTE: This is a standard statement for inadvertent discovery.)
- Pursuant to 43 Code of Federal Regulations (CFR) 10.4 (g), the Authorized Officer must be notified, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), all activities must stop in the immediate discovery vicinity and protected for 30 days or until notified to proceed by the Authorized Officer.

2.3 Alternative C –Greenstripping Fuel Break Only

Greenstripping is the practice of establishing or using patterns of fire resilient vegetation and/or material to reduce wildfire occurrence and size (St John and Ogle 2009). Decreased fuel, shorter plant height, and higher fuel moisture content of the plants growing in the greenstrip will rapidly slow a fire when it encounters a greenstrip (St John and Ogle 2009). The same 145 miles of roads identified for treatment in the Proposed Action would be treated, but all roadsides would have greenstrips and no mowing would occur (Map 7. Alt C). There would be 103 miles of new greenstrips developed and 42 of existing greenstrips maintained. Greenstrips 300 feet wide (150 feet on each side or 300 feet on one) along 103 miles of road would be created by removing existing roadside vegetation and then planting fire resistant vegetation. Existing vegetation would be removed by prescribed fire, plowing, mowing or a combination of methods. Treatment

using BLM-approved herbicides would be applied where invasive annuals are a major component of the vegetation. Greenstrips would be seeded with suitable fuel break species appropriate for the ecological site, and all greenstrips would be maintained by using herbicides, re-seeding or both, as necessary. Greenstrips within ½ mile of playas would not be seeded with forage kochia to protect Davis' pepperweed habitat from encroachment.

Greenstrips would be monitored annually for establishment, weeds, and invasive plants, and re-treated, as necessary, until the desired vegetation becomes established. Once established, monitoring would occur on a three-year rotation to determine maintenance needs. In some areas, temporary fencing or temporary changes to grazing management may be required to protect greenstrips from livestock until the vegetation becomes established.

No greenstripping would occur from February through July to prevent disturbance to lekking and nesting sage-grouse. Jenni and Hartzler (1978) found that sage-grouse males began attending leks in early March in Montana, and Dalke et al. (1963) indicated that, in the Big Desert area of Idaho, male lek attendance begins in March and increases rapidly during the first two weeks of April. According to Idaho's Instruction Bulletin (IB) 2010-039, activity restrictions near leks normally begin March 15 at lower elevations.

Areas excluded from greenstrip treatments include wet meadows, riparian greenlines, unevaluated or significant archaeological sites, occupied pygmy rabbit sites, sage-grouse leks, and a 100 foot buffer around playas.

Standard Operating Procedures/Design Criteria (Alternative C)

These are the same as those identified for Alternative B.

2.4 Monitoring and Evaluation

Monitoring would be implemented to measure progress towards meeting objectives during and after implementation of either action alternative (B or C). Monitoring practices are divided into two categories:

- Implementation Monitoring: Done frequently to determine adherence to project criteria
- Effectiveness Monitoring: Allows resource condition comparisons between years to determine trends and whether significant progress is being made towards long-term objectives

Implementation monitoring would occur during and following all phases, and would be conducted by the project inspector to ensure that the project was implemented as prescribed.

Effectiveness monitoring would be conducted on transects in treated and untreated control areas. Data would be collected before and after treatment to determine success, and identify if additional treatments would be necessary to meet project objectives. Greenstrips would be monitored to identify if seeded vegetation is spreading from designated greenstrip areas. The Monitoring Plan, located in Section 7, contains monitoring details including protocol, timelines, and how results are measured and evaluated.

Additional monitoring would occur to document and evaluate fuel break effectiveness during fire suppression and by means of interviews with fire personnel and post-fire site evaluation. The fuel break monitoring data sheet can be viewed in appendix 7.2.

2.5 Alternatives Considered But Not Analyzed in Detail

Five alternatives were considered during the planning/development process, but not analyzed in detail because they did not achieve project objectives. These included prescribed fire, mowing interior areas away from roads (not along roadsides), mowing only in Wyoming big sagebrush communities, intensive livestock grazing, and building a guard station.

Prescribed burning of roadside fuel breaks was discussed early in the alternatives development. It was not carried forward in the analysis because the logistics, costs, and timing to conduct prescribed burns most years, at the scale needed, would be very short, increasing the potential for not meeting objectives and losing project funding. The costs, logistical demands, and personnel would be much greater for a prescribed burn when compared to mechanical or chemical treatment alternatives.

Mowing interior away from roads would have consisted of leaving 100-200 yards of vegetation adjacent to roadsides and mow strips would have been developed at least 100 yards from a roadside. This would reduce visual impacts of mowing immediately adjacent to roadsides and reduce associated roadside weed issues. However, roadways are already disturbed, and increasing the disturbance area by 50 feet on each side was considered less of a visual impact than going farther away and mowing areas un-impacted by roads. Roadside weeds are already an issue, and easier to monitor and treat. If weeds were introduced farther from roads, they may not be detected as readily as along roads. Part of the fuel breaks' effectiveness, along roads, is the roadway's bare soil, so interior mowing would not meet the purpose of reducing fires burning across existing roadways. Additionally, options for engaging wildfires and firefighter safety would not be increased, per the project's purpose and need.

Mowing only in Wyoming big sagebrush communities was considered, but not analyzed further. While the mowed areas would provide greater safety for firefighters and increase fire suppression options, it would not protect areas with the best habitat and highest numbers of sage-grouse.

Intensive grazing was considered as an option to limit the amount of grass along roadways. Grazing would not effectively trim roadside sagebrush height to reduce flame lengths and the risk of fire spread across roads. This option also has a high degree of complexity, supervision, and amount of temporary fencing required to contain livestock within a narrow corridor. Public safety issues, such as risk of vehicle collisions with livestock, were also a concern.

A Grasmere Guard Station was suggested in order to position firefighters closer to critical sage-grouse habitat and reduce fire response time, increasing the likelihood of containment before large habitat tracts are consumed. With declining Federal budgets, it was felt this expense would have a low priority for base funding, and no guarantee of future monies to support additional personnel, facilities, and equipment.

3.0. Affected Environment, Environmental Consequences, and Cumulative Impacts

The following critical elements of the human environment have been analyzed in the Bruneau Management Framework Plan (USDI 1983), and are not known to be present in the project area or affected by enacting either alternative; therefore, they will not be addressed further in this document. They are wild and scenic rivers, wilderness, areas of critical environmental concern, minority or economically depressed populations, farmlands, floodplains, water quality, wetlands and riparian zones, air quality, paleontology, adverse energy impacts, and hazardous materials. Wilderness occurs in proximity to the project; however no treatments would occur in the wilderness.

This section provides an evaluation of the baseline condition of critical elements potentially affected by the alternatives. The evaluation is a description of the elements' current condition, consequences or expected implementation effects of each alternative, as well as potential effects of continuing current management without implementation of either alternative.

Analyses of cumulative impacts and their scope for each resource are also presented. Cumulative effects describe incremental impacts of the alternatives when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes them (40 CFR 1508.7).

Actions that have occurred in the past and will continue into the foreseeable future include:

1. Livestock grazing and Trailing – Livestock grazing and trailing has occurred here for over a century, and is expected to continue into the foreseeable future. Rangeland Health Assessments and subsequent determinations on meeting rangeland standards are scheduled for Sheep Creek and Riddle allotments in the near future. Based on those determinations, management direction in the new permits may include conditions to achieve applicable standards. Other allotments in the PA are required to meet Rangeland Health Standards and Guidelines.
   Livestock trailing – Trailing is the process of moving livestock from one location to another by herding the cattle using horses or motorized vehicle. In the PA, trailing may occur within 50 feet of trailing routes, which are usually existing roads, unless the specific trailing event would not conflict with treatment objectives. Overnight areas would be designated. Trailing would follow stipulations identified in the Trailing EA (Environmental Assessment DOI-BLM-ID-B010-2012-0003-EA).
2. Military training – The area is under airspace used by the U.S. military for training purposes. Operations often include high speed flights causing sonic booms and low levels flights by loud fighter jets. This type of training has occurred for decades and some wildlife species may have adapted to the aircraft sounds and presence, but we are not aware of definitive evidence to that effect. When disturbance does occur, it is of short duration. Military vehicles are used on a minimal basis in the PA and vehicles stay on roads.
3. Noxious weed treatment – The project area is within the Eastern Owyhee Cooperative Weed Management Area (CWMA). The BLM and its cooperators have been working together to identify, monitor, and treat noxious weeds for several years. This cooperative is expected to continue into the foreseeable future. Weed treatments consist of mechanical, biological, and chemical methods as described in the Noxious and Invasive Weed Treatment EA (Boise District and Jarbidge Field Offices EA #ID-100-2005-EA-265).

4. Power line maintenance – The power line adjacent to State Highway 51 was established in 2008, and is considered as part of the existing condition. Maintenance includes occasional power line work and spraying chemicals to inhibit vegetation growth at the base of power poles to protect them in the event of wildfire. The effects scope from power line maintenance is limited because it is adjacent to the highway.
5. Northwest pipeline – This gas pipeline crosses through the western portion of the PA. There is minimal maintenance required on this structure. The likelihood of cumulative effects associated with pipeline maintenance and any alternative is minimal and these actions will not be analyzed further.
6. Recreation – Several forms of dispersed recreation are popular throughout the PA, including camping, hiking, driving, hunting, biking, birding, off-highway vehicle riding (OHV), and shooting. Most recreation occurs in the fall during annual hunting seasons for pronghorn antelope, elk, deer, chukar, and greater sage-grouse. For most resources, there would be no cumulative recreation effects.

3.1 Fuels and Fire Behavior

3.1.1 Affected Environment

The National Wildfire Coordination Group (NWCG) (2011) defines a fuel break as "A natural or manmade change in fuel characteristics which affects fire behavior so that wildfires burning into them can be more readily controlled." The group also defines a fuel break system as "A series of modified strips or blocks tied together to form continuous strategically located fuel breaks around land units." Creating fuel breaks by either mowing or greenstripping along roadsides alters the structure, composition, and continuity of vegetation within the strips from either a predominantly shrub dominated overstory or annual grass dominated overstory to a perennial bunchgrass overstory. This change in vegetation structure, composition, and continuity has meaningful effects on fire behavior as a wildfire front enters and burns in these strips.

Under typical summer weather conditions in the Boise District, wildfires burning in big sagebrush stands can be described as exhibiting moderate to high intensity, and high rates of spread compared to other vegetation communities. Wildfires in annual grassland can be described as having very high intensities and rates of spread compared to other vegetation communities. Wildfires burning in short perennial bunchgrass stands, on the other hand, have much lower intensity and rates of spread compared to either big sagebrush or annual grassland stands.

A fuel model is a description or set of measurements that define properties for vegetation communities with similar fuel bed characteristics. These measurements are used by fire managers as inputs to mathematical models for wildfire behavior potential. Specifically, the Rothermel (1972) fire spread model is the core algorithm in fire behavior software programs such as BEHAVE (Burgan and Rothermel 1984), BehavePlus (Andrews et al. 2003), and FARSITE (Finney 1998). These programs have been widely used for years by fire managers during wildfire incidents and to plan prescribed fires. In 2005, a set of 40 standardized fuel models were released for use in fire behavior and fire effects modeling (Scott and Burgan 2005). Prior to then, fire managers had a set of 13 standard fuel models to choose from when calculating potential fire behavior (Rothermel 1972, Albini 1976, Anderson 1982). Based on local fuel load measurements and firefighter observation, the three standard fuel models that best represent fuel

bed characteristics for the project include: Grass Shrub 2 (GS2) (for big sagebrush); Grass 1 (GR1) for perennial bunchgrass; and Grass 4 (GR4) for cheatgrass. Figures 2 and 3 display expected flame lengths (feet) and rate of spread (chains/hour, see glossary) of wildfires burning in GS2, GR1, and GR4 fuel models on a 0% slope, under varying midflame wind speeds, and low summer fuel moisture conditions.

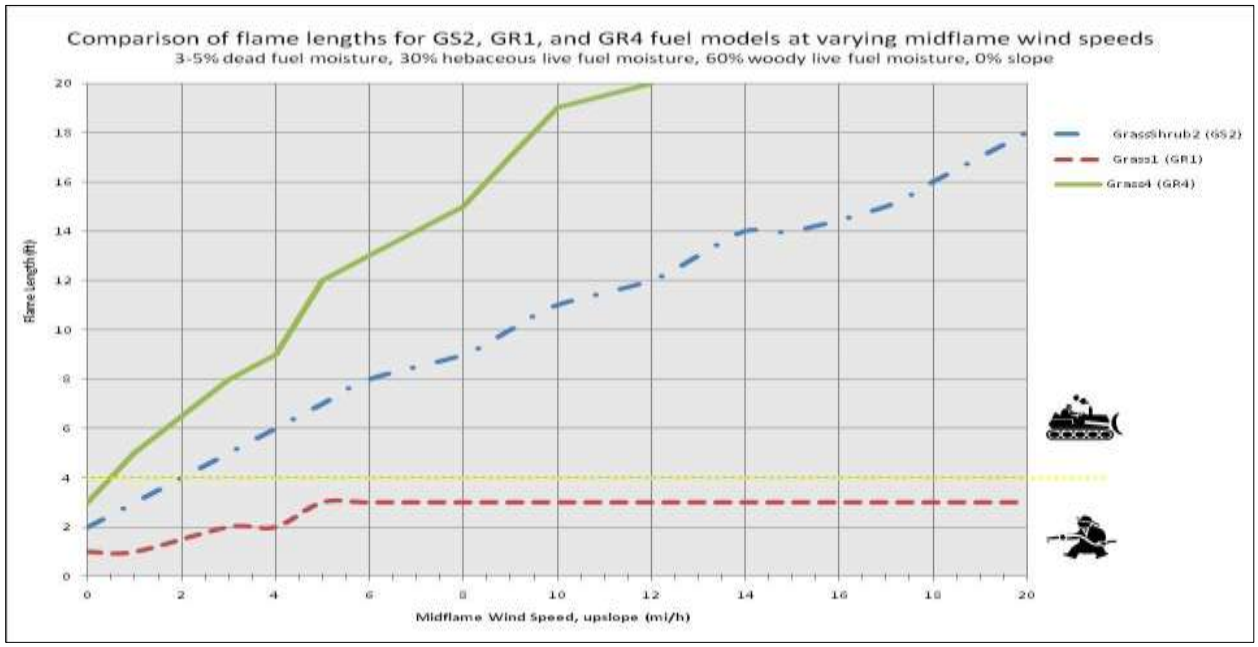

Figure 2. Comparison of flame lengths by fuel models

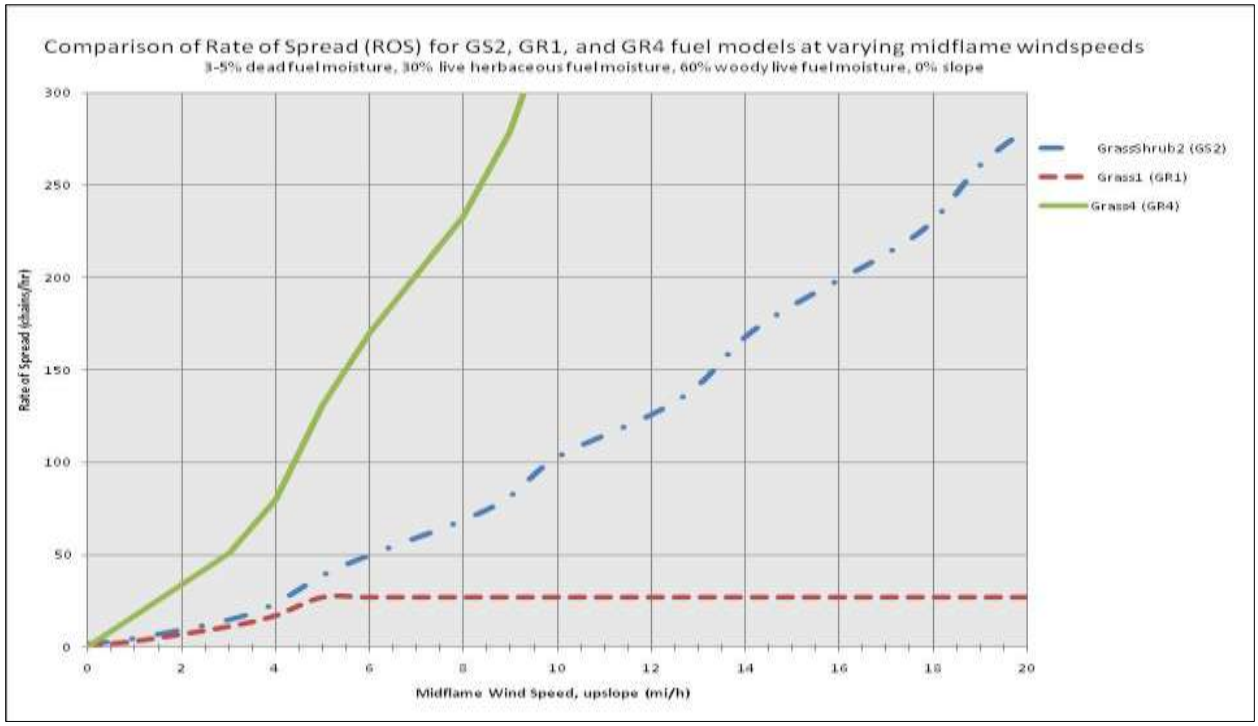

Figure 3. Rate of wildfire spread by wind speed and fuel model

As mid-flame wind speed increases from 0 to 5 miles per hour, flame length in GR1 increases up to three feet and then levels off even as midflame wind speed continues to increase. Flame length in GS2 and GR4, on the other hand, continues to increase incrementally as mid-flame wind speed increases. Similarly, rate of spread in GR1 increases as mid-flame wind speed increases up to six miles per hour and then levels off, moving at a rate of 25 chains per hour. Rate of spread in GS2 and GR4 continues to increase incrementally as mid-flame wind speed increases.

Wildfires burning in big sagebrush stands during dry, hot, and windy conditions with live woody fuel moistures below 75% can be expected to consume large acreages in a very short time. Generally, wildfires with flame lengths of four feet or less can be fought directly by people with handtools, whereas fires with flame lengths greater than four feet are too intense and require an indirect attack suppression, utilizing heavy equipment like fire engines, bulldozers, and retardant aircraft.

Sustained wind speeds during a passing summer thunderstorm often exceed 30 miles per hour, and wildfire burns across changing topography, so flame lengths in big sagebrush stands can be expected to exceed the 18 feet displayed in Figure 2. In addition, wind driven fires often send burning embers which can ignite vegetation in advance of a flaming front. For these reasons, mow strips or greenstrips along roadways should not be viewed as "fire stoppers", but rather as a proactive measure taken to provide firefighters more options to safely engage wildfires when they occur.

Indirect attack of a fast moving wildfire often involves the ignition of a backburn, starting from an anchor point and continuing along existing roads well ahead of the flaming front. This, in essence, substantially widens the road by eliminating the fuel that normally would feed an advancing fire. Roads chosen for this kind of tactic ideally need to be readily accessible to heavy equipment and allow for the ignition of vegetation on one side of the road without accidental ignition on the opposite side. In addition, aircraft fire retardant drops can bolster and/or widen pre-existing fuelbreaks.

Historically, wildfires that "go big" and burn large acreages have often occurred following a thunderstorm's passage, when multiple ignitions occur across the District over a short period of time and firefighting resources are spread thin. A network of fuelbreaks along roadsides, known to firefighters in advance, can mean the difference between having the ability to contain and control a wildfire at thousands of acres instead of tens of thousands, **especially** when only limited firefighting resources are available. To illustrate this point, a synopsis of the Crowbar Fire, which burned 29,500+ acres in 2010 at the project area's north end, is described below.

Crowbar Fire Synopsis - On August 5, 2010, multiple thunderstorms ignited three wildfires while passing over the Boise District. One, named the Crowbar Fire, would burn 29,508 acres in the northern portion of the BFO before being controlled. It burned through some of the last remaining stands of big sagebrush present in this area, as well as old range seedings and annual grassland. A red flag warning, indicating high fire danger, was in effect until 9:00 pm that day due to scattered thunderstorms. Predicted weather conditions were optimum for rapid wildfire

growth with maximum temperatures between 90 and 99° F, minimum relative humidity between 9% and 19%, sustained winds around 10 mph, and a Haines Index (potential for rapid fire growth) rating of 6 High. An ignition on the western edge of the BFO, the Pot Fire, was reported to dispatch at 4:22 pm, one hour before the Crowbar Fire was detected. The Pot Fire was considered high priority because it was burning in intact key sage grouse habitat. Initial dispatch consisted of four Type 4 fire engines, one bulldozer, one helicopter, one water tender, one heavy air tanker, and available fixed wing aircraft. A smoke column to the east of the Pot Fire was detected as firefighters were responding, and a Battalion Chief diverted to take a look.

Upon arrival at the smoke column, the Battalion Chief called Boise District Duty Officer requesting diversion of the dispatched bulldozer and heavy air tanker. The fire at 6:17 pm was estimated to be 200+ acres and running. The bulldozer and heavy air tanker were diverted to the Crowbar Fire, but these would be the only firefighting resources received for almost two hours, despite requests, due to multiple ignitions and active wildfires burning across southwestern Idaho. When four fire engines did arrive, access around much of the fire was difficult due to sandy soil and topography, so indirect attack suppression was utilized.

A backburn operation was attempted off the CCC Road, but soon abandoned due to heavy brush on both sides, and firefighters could not safely ignite and keep fire to one side of the road (Figure 4). At 7:18 pm, it was estimated to be 600+ acres. The fire burned across Broken Wagon Flat Road to the south at 8:40 pm, keeping the limited firefighting resources busy. A second bulldozer and two more fire engines arrived on the fire between 9:30 and 10:30 pm, and a big backburn operation located off State Highway 51 was planned. Firefighters were successful in completing the backburn while the two bulldozers flanked the north side of the fire, tying into State Highway 51 at 2:27am the next morning. The wildfire was effectively stopped by the backburn operation, but not until it had burned almost 30,000 acres (Figure 4). Fire engines and helicopters continued to address hotspots within the fire's perimeter throughout the next day; the fire was called controlled on August 7, 2010.

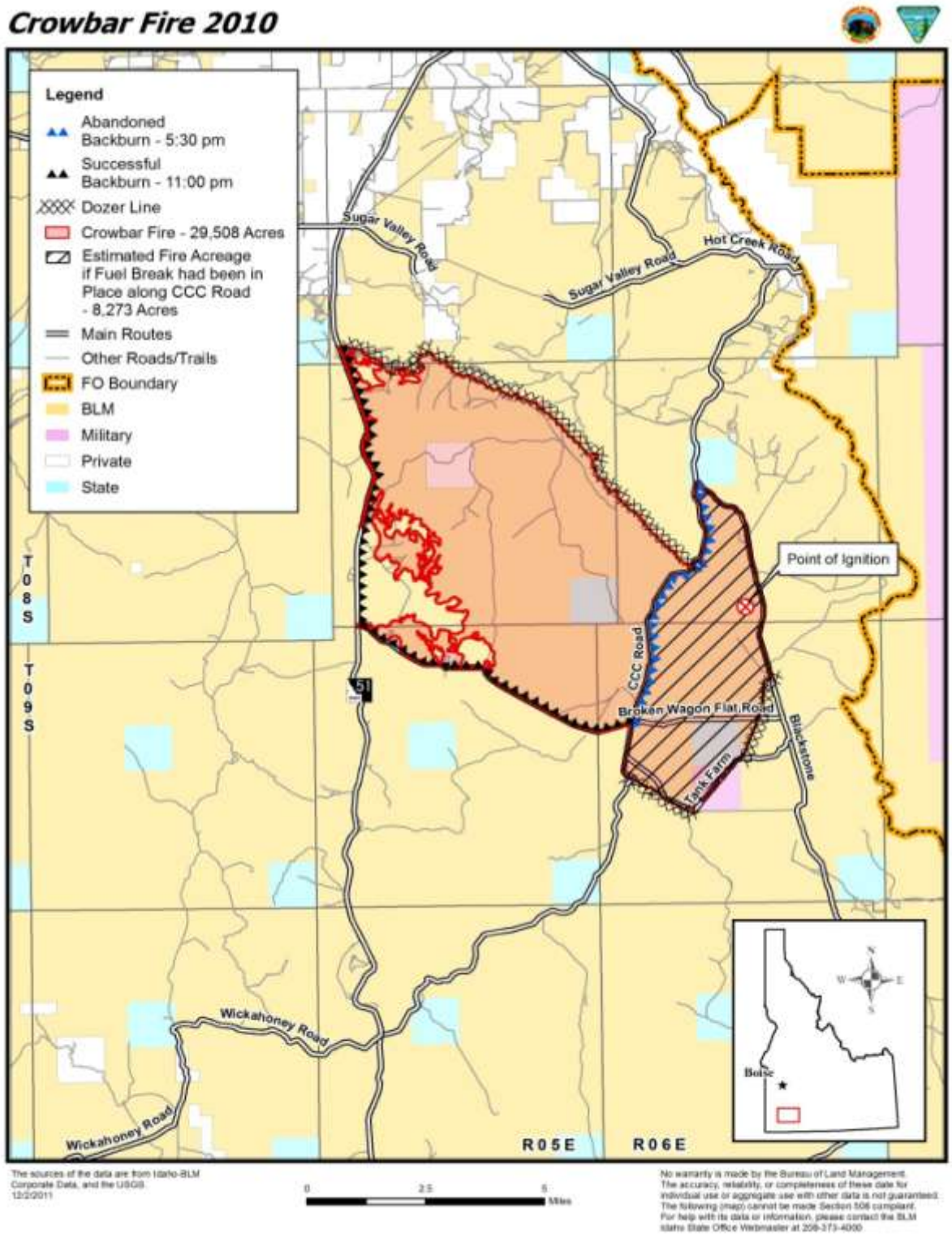

Figure 4. Illustration of events and acres burned in the Crowbar Fire 2010

3.1.2 Environmental Consequences

3.1.2.1 Alternative A

The No Action alternative would not have a network of placed fuelbreaks across the PA. Opportunities for firefighters to safely engage wildfires using indirect attack suppression tactics, such as backburns, would be limited, for the most part, to major highways and crowned and ditched roads (e.g. county roads). Wildfires, like the 2010 Crowbar Fire, would continue to burn across large acreages during hot, dry, and windy summer days when firefighting resources are limited from multiple ignitions following thunderstorms. The number of future acres burned during wildfires in the PA, over the next year, decade or century, is difficult to estimate because the causal factors of fire, location of lightning caused ignitions, and availability of suppression resources are dynamic and, in some cases, unknown. These causal factors include weather and climate in response to increases in global warming, fine fuel loads, increases and/or decreases in non-native plant species, changes in resource management, and future agricultural and/or urban development and infrastructure.

3.1.2.2 Alternative B

The Proposed Action would result in a network of fuelbreaks (both mowed and greenstrips) across the PA. Opportunities for firefighters to safely engage wildfires using tactics such as backburns would be increased, and acres burned over time would likely be reduced. The probability of controlling a wildfire, in a remote region during extreme summer weather conditions and when firefighting resources are scarce due to multiple ignitions, would be increased over Alternative A.

The Battalion Chief/Incident Commander of the 2010 Crowbar Fire stated he is confident that had a 50-foot mowed, vegetation strip along both sides of the CCC Road been in place prior to the fire, efforts to conduct the original backburn early in the initial attack would have been successful (T. Floyd, personal communication, 2011). Given this predicted successful backburn operation, the Crowbar Fire would have been controlled at approximately 8,200 acres, instead of the 29,508 acres it consumed. The wildfire conditions and availability of fire suppression resources exhibited on the Crowbar Fire were not unique. Many historic wildfires in the sagebrush steppe of the BFO and across the Boise District have had similar circumstances, where multiple ignitions were started by passing thunderstorms and suppression resources were spread thin, creating optimum conditions for larger acreage fires.

3.1.2.3 Alternative C

Alternative C would result in a network of strategically placed greenstrips across the PA. Wildfire intensity and rate of spread would decrease as it entered these strips and, in some cases, would extinguish before reaching the other side because of the greenstrip width (300 feet plus the road),. In addition, opportunities to safely engage wildfires using indirect tactics, such as backburns, would be increased and acres burned over time would likely be reduced. The probability of controlling a wildfire, in a remote region during extreme summer weather conditions and when firefighting resources are scarce due to multiple ignitions, would be substantially increased compared to Alternative A. Because greenstrips could be composed of forage kochia (a shrub that stays green throughout the fire season and excludes grasses and forbs within shrub interspaces over time) and wide enough to potentially extinguish wildfires without

suppression, the number of future acres burned under this alternative would likely be fewer than acres burned under the Proposed Action (Alternative B). However, because causal factors of wildfire, availability of fire suppression resources, and location of natural fire ignitions are dynamic, the number of acres spared from future wildfire compared to Alternative B is unknown.

3.1.3 Cumulative Impacts

The fuels and fire behavior scope of analysis for Cumulative Impacts includes all lands within the PA boundary and grazing allotments immediately adjacent to the PA for as long as established fuelbreaks are maintained. This scope is appropriate because the proposed fuelbreaks would increase the likelihood of reducing wildland fire size in and immediately adjacent to the PA but not necessarily any larger an area.

Livestock grazing (including trailing) occurs throughout the project area and in adjacent grazing allotments. Grazing at high intensity levels can affect wildfire spread by removing fine fuels (grasses). Grasses adjacent to water sources and along portions of fenceline are often grazed to a level that would not support a flaming front. These heavily grazed areas could potentially increase the number of fire suppression opportunities available, above and beyond those provided by either mowed strips and/or planted greenstrips along roads alone, although these grazed areas can change from year to year (e.g. removal of temporary fence, change in water source location) and might not be known to firefighting personnel in advance.

3.2 Vegetation, including Noxious Weeds and Special Status Species

3.2.1 Affected Environment

General Vegetation – Plant communities in the project area are characterized by soil type and disturbance. Approximately 165,000 acres have burned in wildfires since the late 1950s. These fires occurred mostly in the project area's western half where characteristic vegetation is composed of Wyoming big sagebrush and salt-desert shrubs. The majority of these acres were seeded post-fire and are typically composed of crested wheatgrass with various stages of re-establishment of sagebrush, rabbitbrush or salt-desert shrub, and various levels of invasion by non-native annual grasses and forbs. Ecological site descriptions (ESDs), developed by the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS), describe the typical plant community expected to occur on a site, based on soil parent material, climate, living organisms, topography or landscape position, and time (USDA-NRCS, 1997). Due to the project's large area and fluctuation in annual plants, it is difficult to accurately ascertain how much has been invaded by non-native annual grasses and forbs or what level of invasion has occurred. Therefore, the ESDs are used to describe the potential vegetation where no large scale disturbances, such as fire or post-fire seeding, have altered the vegetation type.

The soils in the north and east lower elevation areas developed from historic lakebed sediment, and tend to be high in calcium and sodium salts. The ecological sites representative of these soils are the Silty and Calcareous Loam 7"-10" with salt desert shrub plant communities dominated by shadscale (*Atriplex confertifolia*), bud sagebrush (*Picrothamnus desertorum*), winterfat (*Krascheninnikovia lanata*), and horsebrush (*Tetrademia* sp.) with Indian ricegrass (*Achnatherum hymenoides*), Thurber needlegrass (*Achnatherum thurberianum*), bottlebrush squirreltail (*Elymus elymoides*), and Sandberg bluegrass (*Poa secunda*). Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) also occurs in these ecological sites, but is

not typically a dominant plant. Approximately 81,000 acres in the project area are classified as these ecological sites.

The mid-elevation area runs diagonally from the northwest trending southeast through the project area. The major ecological site descriptions include Loamy 8"-12" and 10"-13" dominated by Wyoming big sagebrush with bluebunch wheatgrass (*Pseudoroegneria spicata*) and Thurber needlegrass in the understory. Also in this mid-elevation zone are areas of Very Shallow Stony 8"-12" with a black sagebrush (*Artemisia nova*) dominated plant community. Approximately 251,000 acres in the project area are classified as these sites.

The higher elevation occurs in the southwestern third of the project area. The dominant ecological sites in this zone are Loamy 12"-16", Shallow Claypan 12"-16", and Clayey 12"-16". The plant communities associated with the Loamy sites are dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) with bluebunch wheatgrass and Idaho fescue (*Festuca idahoensis*). The plant community associated with Shallow Claypan and Clayey sites is low sagebrush (*Artemisia arbuscula*) with Idaho fescue. Approximately 90,100 acres are classified as these sites.

Cheatgrass (*Bromus tectorum*), an invasive non-native annual grass, has become established in low to mid elevation plant communities in the central and eastern portions of the project area. With the moderate temperatures there, cheatgrass is able to germinate in the fall, overwinter, and emerge in the spring with an established root system. This growth habit allows cheatgrass to take advantage of available early spring moisture, giving it a jump start on the growing season. Following disturbance, such as fire or heavy livestock grazing, plant communities experience an increase in annual grasses and forbs, sometimes becoming the dominant species. Conditions in the higher elevations reduce the risk of cheatgrass dominance, where it must complete a full lifecycle during a spring/summer period. In the higher elevations, cheatgrass may still become a dominant species; however the current native communities provide adequate competition to preclude this from occurring.

Where seeding treatments have been moderately successful following wildfires, the plant communities are typically a mix of crested wheatgrass with existing native perennial grasses and sagebrush. Other plant species that have been seeded are Russian wildrye, sand dropseed, and forage kochia. Based on satellite imagery interpretations from 2005, roughly 44,000 acres in the project area are characterized as seedings; this acreage has increased since 2005 as a result of additional wildfires..

Noxious weeds – The following Idaho noxious weeds located within the project area include salt cedar, or Tamarisk (*Tamarix spp*.), Scotch thistle (*Onopordum acanthium*), Canada thistle (*Cirsium arvense*), white-top (*Cardaria draba*), diffuse knapweed (*Centaurea diffusa*), Rush skeletonweed (*Chondrilla juncea*), and spotted knapweed (*Centaurea maculosa*).

Special Status Species - There are no known populations of Federally Listed Proposed, Threatened, or Endangered (T&E) plant species in the project area. However, approximately 3,000 – 4,000 acres in the area's extreme northeastern portion has been preliminarily identified as potential habitat for slickspot peppergrass (*Lepidium papilliferum*), based on soil information. Slickspot peppergrass is an annual or biennial plant, listed in 2009 by the US Fish and Wildlife Service (FWS), as a threatened species under the Endangered Species Act of 1973, as amended [74 Federal Register (FR) 194]. Botanical surveys completed in this northeastern area did document the occurrence of unoccupied slickspots. If the slickspots are determined to be suitable

habitat, the greenstrip mix will exclude species with invasion potential within a mile of proposed seeded fuel breaks. Treatments will be in accordance with the conservation agreement signed by FWS and BLM.

There are no BLM Type 2 species in the project area, but several Types 3 and 4. The Type 3 and 4 plants known to occur within one mile of proposed fuel break treatments are discussed below.

BLM Type 3 - These are species that are globally rare or very rare in Idaho, with moderate endangerment factors. Their global or state rarity and the inherent risks associated with rarity make them imperiled.

- **Davis' pepperweed** (*Lepidium davisii*) is a perennial forb that occurs in flat, seasonally flooded playas at elevations ranging from 2,500 to 5,000 feet. While the playas are typically barren, the surrounding vegetation is usually big sagebrush or shadscale. This species is a regionally endemic species restricted to Ada, Elmore, Owyhee, and Twin Falls counties. The distribution of this species is divided into six population centers; the project area is within the "Bruneau Desert" center which encompasses approximately 670 square miles of the Owyhee plateau. Extensive surveys have been completed for this species throughout the area. Threats include; livestock grazing, stock pond developments, vehicle use, invasive weeds, dozer lines/mechanical disturbance, fire, and herbicides. Within one mile of proposed treatments there are twenty occurrences of this species in the project area.

- **Osgood Mountain milkvetch** (*Astragalus yoder-williamsii*) is a small perennial forb and a former federal candidate for listing as threatened or endangered and is of particular concern due to its limited distribution. The range of this species includes Humboldt County, Nevada and Owyhee County, Idaho. This perennial species is found in mountain big sagebrush and low sagebrush communities. Distribution of this species within one mile of proposed treatments is limited to three populations in the southwestern portion of the project area.

- **Spreading gilia** (*Ipomopsis polycladon)* is a prostrate growing annual forb that can grow in dry, open areas in salt desert shrub communities on silty or sandy soils between 2,600 and 4,900 ft in elevation. In Idaho it is found in Butte, Elmore, Owyhee, and Power counties, elsewhere it occurs in California, Nevada, Utah, Colorado, Texas, Arizona, and into Mexico. Distribution of this species within one mile of proposed treatments is limited to a single occurrence in the northwestern portion of the project area.

BLM Type 4 - These species are generally rare in Idaho with small populations or localized distribution and low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize them.

- **Packard's cowpie buckwheat** (*Eriogonum shockleyi* var. *packardiae* is a low growing perennial forb that can occur on gravelly benches on lake bed sediments in shadscale, mixed desert shrub, and sagebrush communities. Habitat for this species is characteristically sparse in vegetation because of the unproductive, clay-rich soils. The range of this species includes Inyo County, California across central Nevada to western Utah. In Idaho it occurs in Elmore, Gooding, Owyhee, and Twin Falls Counties. Distribution of this species within one mile of proposed treatments is limited to a single occurrence in the northeastern portion of the project area.

- **Simpson's Hedgehog cactus** (*Pediocactus simpsonii* var. *robustior*) is a small perennial ball cactus that can occur on rocky or sandy benches and canyon rims. The range of this species includes Nevada, Wyoming, Utah, Colorado and the following Idaho counties: Cassia, Idaho, Nez Perce, Oneida, Lemhi, Owyhee, and Twin Falls. The rocky nature of its habitat generally protects this species from disturbance. This Watch list species is of low conservation risk due to its relative abundance and slightly higher tolerance for disturbance. The distribution of this species in the project area is limited to one population near Sheep Creek in the southeastern portion.
- **White-margined wax plant** (*Glyptopleura marginata*) is a small annual forb that occurs on dry sandy-gravelly or loose ash soils in plant communities of; shadscale, greasewood, rabbitbrush, spiny hopsage, winterfat, and sagebrush at elevations between 2,600 and 3,900 feet. The distribution range for white-margined wax plant is; se Oregon, w Nevada, California, Utah, in the following Idaho counties Elmore, Owyhee and Twin Falls. Distribution of this species within one mile of proposed treatments is limited to two populations in the northeastern portion of the project area.
- **Rigid threadbush** (*Nemacladus rigidus*) is a very small annual forb that grows in sandy or cindery soils in the desert shrub zone at elevations between 2,600 and 3,900 feet. The distribution range extends from Owyhee county Idaho, se Oregon, Inyo county California, and Nye county Nevada. Distribution of this species within one mile of proposed treatments is limited to two populations in the northwestern portion of the project area.
- **Spine-noded milkvetch** (*Peteria thompsoniae*) is a low growing perennial forb. In Idaho it only occurs in volcanic sands along the Owyhee front between 2,750 and 4,265 feet. in elevation. Elsewhere in its range it occurs in desert shrub communities in dry washes, flats, ridges and talus. Distribution of this species within one mile of proposed treatments is limited to two populations in the northwestern portion of the project area.

3.2.2 Environmental Consequences

3.2.2.1 Alternative A

General Vegetation - The potential for large scale wildfire occurrences would continue to pose a risk to mature shrub steppe plant communities. Burned areas have much fewer shrubs for several years until they become re-established. The time required for a mature shrub steppe plant community to return to pre-fire conditions varies by the climatic conditions, severity, and size of the fire, as well as condition of the plant community prior to the fire. With frequently recurring fires, stands of sagebrush become more fragmented and at an increased risk from invasive non-native annual grasses and forbs. Increases in annual plants create a continuous canopy of highly flammable biomass, and creates prime conditions for fire to carry through an area. Areas currently dominated by cheatgrass would continue to increase and expand, further increasing the risk of stand replacing wildfires.

Noxious Weeds – Under this alternative, wildfires would have greater potential to burn large areas from the lack of fuel breaks, thereby increasing the potential for the spread of noxious weeds. Following wildfires, the weed spread risk increases because of the temporary decrease in competition from other plants. The BLM and local cooperative weed management group would

continue to monitor and treat populations of noxious weeds, as time, staff, and funding allow. However, this effort would not be expected to eradicate all noxious weeds in the area.

Special Status Species – The potential for habitat loss would be greater than in Alternative B due to the increased risk of large scale wildfires and subsequent increase of invasive non-native annual grasses and noxious weeds.

3.2.2.2 Alternative B

General Vegetation – Mowing would result in some localized mortality of larger and older sagebrush, especially over the long-term with repeated mowing for maintenance. Herbaceous species, such as grasses and forbs, would be expected to increase with the reduction of shrub canopy. Fall mowing could result in an increase of young sagebrush plants during the first few years. Mowing effects would differ depending on the condition of the plant communities; where few perennial grasses occur, annual grasses would potentially increase resulting in increased need for herbicide treatments.

The effects of greenstripping would result in the loss of some native plants; however the majority of proposed greenstripping is located where either cheatgrass or exotic perennial grasses occur as a result of wildfire or fire rehabilitation treatments. Greenstripping would replace cheatgrass with more fire resilient and/or resistant plant species. The loss of small areas of sagebrush habitat would be offset by the increased potential to protect and retain large intact stands of existing sagebrush. Intact stands of sagebrush plant communities would be less likely to become fragmented or to convert to annual dominated grasslands. Reducing the risk of fire increases the stability of native plant communities and potentially reduces fire return intervals.

Noxious Weeds – Proposed treatments of mowing or seeding would increase soil disturbance and reduce competition from woody plant species, which would result in an increase in herbaceous plant cover and vigor, including noxious plant species, when present. Weedy species benefit from soil disturbance, reduced competition, and increased light. When small sagebrush or perennial grasses are occasionally mowed, the plant response would be an increase in lateral branching (sagebrush) and basal area (perennial grasses).

Special Status Species - Fuel breaks would provide increased protection for special status plant habitat from wildfire in areas interior to the treated routes. Protection from wildfire could result in greater long-term stability for populations of special status plants. To minimize potential impacts from mowing treatments would not occur within 100 feet of playas containing Davis' pepperweed. This buffer would provide adequate undisturbed native vegetation adjacent to playas to retain habitat integrity. Other special status plants occurring within one mile of proposed treatments are all low growing and impacts from mowing would be very unlikely, known occurrences would be marked for avoidance with seeding equipment where feasible.

The use of herbicides to control invasive annuals would have a negative impact to special status plant species if direct contact was made with foliar herbicides or if systemic herbicides were used in close proximity to known populations of these species. Persistent herbicides would not be used within 100 feet of Davis' pepperweed populations. However foliar herbicide would be allowed up to 10 feet of the playa edge using ground application methods, and pedestrian

application methods would only be used closer than 10 feet. Because of the propensity for forage kochia (*Kochia prostrata*) to inhabit playas, its use in seedings would be restricted to at least ½ (one-half) mile from playas.

3.2.2.3 Alternative C

General Vegetation - Establishing a greenstrip, rather than mowing, would result in more disturbance, sagebrush loss, and increase of herbaceous species than Alternative B. Drill seeding disturbances would increase the spread and expansion of invasive annual grasses and forbs during establishment of perennial species. This lag time of perennial plants in the fuel breaks could result in needed herbicide applications to control annual weedy species.

Noxious Weeds - Noxious weeds increase when established plants are removed or when soil disturbance occurs. Therefore, removal of existing vegetation and soil disturbance associated with drill seeding would increase the potential for noxious weed expansion and increase the amount of post-treatment herbicide treatments.

Special Status Species - Impacts from greenstripping rather than mowing would result in an amplified effect to special status plants that occur within or adjacent to seeded areas. Special status plants rely on intact native plant communities for habitat. The shift from a native plant community structure to grassland could result in loss of habitat for species unable to adapt and eventual loss of some populations of special status plant species. To protect the integrity of playas, treatments buffers described in Alternative B for Davis' pepperweed would apply to treatments proposed in this alternative.

3.2.3 Cumulative Impacts

Of the identified cumulative effects actions, livestock grazing and herbicide treatment for noxious weeds pose potential risks. The analysis scale for cumulative vegetative impacts is variable. For general vegetation and noxious weeds, the extent of the project area is sufficient to describe effects since approximately 0.007 percent (3,042 acres) of the 420,391 acre project area would be directly affected by proposed actions. However, for special status species; limited distributions, edaphic limitations, and various levels of imperilment, the cumulative effects extent is necessarily much larger. For those reasons, southwestern Idaho bounded on the east by the Bruneau River, and the north by the Boise River is sufficient for cumulative effects analysis. Although livestock grazing poses a certain level of risk of impacts through consumption and trampling, these effects are largely dispersed both temporally and spatially. Under the assumption of proper livestock management and improving conditions, negative effects to general vegetation in the project area would be negligible or very slight. The ongoing cooperative weed management treatments would be expected to control the increase in noxious weeds. Total eradication of noxious weeds is difficult if not impossible to attain and extremely unlikely. Having noxious weed treatment as a design feature in this project reduces the risk of rampant noxious weeds. Biological control agents are becoming increasingly effective on some weed species and more agents are likely in the near future. Therefore, it would be expected that noxious weeds would not see a net increase or decrease under Alternatives B or C.

Cumulative impacts to special status plants from livestock grazing and noxious weeds treatments is not expected to cause compounding effects. The Boise District BLM addresses effects to special status plants in environmental assessments for livestock grazing permit renewals.

Through this assessment process, season of use and livestock distribution are adjusted to maintain or improve habitat while minimizing adverse effects to special status species. Additionally, livestock management projects such as fencing, water haul locations, and watering troughs require botanical surveys for special status plant species which results in only minor effects to habitat.

3.3 Wildlife

3.3.1 Affected Environment

The project area lies mostly within the previously discussed Dissected High Lava Plateau Level IV Ecoregion, consisting of rolling plains, hills, sheer-walled canyons, and isolated mesas. Wildlife habitat is sagebrush steppe, including Wyoming, mountain big and low sagebrush; antelope bitterbrush; native perennial grasses, such as Thurber needlegrass, bluebunch wheatgrass, Idaho fescue, and Sandberg bluegrass; and various non-native species, including cheatgrass. The project area's north eastern portion, mainly north of the CCC road, has dense cheatgrass infestations, where multiple fires have led to loss of sagebrush and other native vegetation. Cheatgrass expansion following wildfire is a serious threat to wildlife habitat in the lower elevation Wyoming big sagebrush areas. Several wildfires, within and near the PA, have shown that a single fire can result in thousands of acres of suitable habitat being lost, including habitat for sage-grouse and other sagebrush obligate species.

The PA provides cover, forage, and suitable nesting habitat for several species common to southern Idaho and the Northern Great Basin. The PA also includes portions of one of the last remaining strongholds for sage-grouse in the west. In the 2011 *SW Idaho Fire Management Plan* update (BLM 2011), the PA was identified as a sage-grouse priority wildfire suppression area. While sage-grouse are this project's focus, many species would benefit from preservation of sagebrush habitat. However, not all species known to exist in the PA will be discussed in this EA. A table of federally listed and Idaho BLM Sensitive Species in the BFO can be reviewed in Section 8.

The species analyzed in this EA, except for pronghorn antelope, are either identified by FWS as Candidate species [warrant listing under the Endangered Species Act (ESA) of 1973 but are precluded due to higher priority listings], as BLM Sensitive, or Species of Greatest Conservation Need (SGCN) by IDFG (2005). The species analyzed were chosen because of their special status and representation of effects for similar species. For this EA, the following will be used for evaluation purposes:

- Ferruginous hawk - effects to raptors
- Greater sage-grouse - a standalone species
- Brewer's sparrow - effects to migratory birds
- Western ground snake - effects to reptiles
- Pygmy rabbit - effects to small mammals
- Pronghorn antelope - effects to large mammals

Because there would be no impacts to riparian habitat and water quality, amphibians, mollusks, and fish will not be discussed.

Ferruginous Hawk – This hawk species prefers flat or rolling landscapes in sagebrush shrublands and other arid environments. It nests on rimrock, cliff ledges, rock outcrops, shrubs, haystacks, junipers, anthropogenic structures, man-made nest platforms or, occasionally, on the ground. The project area provides suitable foraging and nesting habitat, although no nest sites have been documented. This species feeds mainly on jackrabbits and ground squirrels, but will also take other prey, such as songbirds, grouse, ducks, snakes, lizards, and large insects. Due to the sagebrush habitat in the PA, this species likely feeds primarily on jackrabbits. Ground nests typically are located far from human activities, and on elevated landforms in large grassland areas (Dechant et al. 2003). Tree-nesting hawks seem to be less sensitive to surrounding land use, but still avoid areas of intensive agriculture or high human disturbance (Dechant et al. 2003). Ferruginous hawks are easily disturbed during the breeding season (Keeley and Bechard 2011; White and Thurow 1985). Dechant (2003) advises to avoid treatments between 1 March and 1 August each year, especially during incubation, an average of 32 days between mid-March to mid-April, when these hawks are more prone to abandon nests, if disturbed.

Collins and Reynolds (2005) stated the primary threats to this species included among other things, lack of suitable prey species and lack of suitable habitat surrounding nest sites, and that most primary threats originate from the loss of historically occupied habitat, or alteration that leads to a significant reduction in small mammal populations, the primary food source of ferruginous hawks. They also state that while all threats operate on a local scale, it should be understood that habitat loss and degradation occur on a broad scale, and retaining large, intact tracts of grassland and shrub-steppe present the major challenge to preserving viable populations of ferruginous hawks.

This species is considered Sensitive by BLM and a SGCN by IDFG. Over forty percent of their southern Idaho habitat has been altered, and numbers have dwindled (IDFG 2008). The species can benefit from actions that focus on maintaining sagebrush habitat and prey populations (Ibid). A more recent concern is the development of wind farms, such as those in southern Idaho, where hawks could potentially collide with turbines during spring and fall migration (Ibid).

In addition to ferruginous hawks, several other raptors utilize habitat throughout the project area. Some commonly observed species include prairie falcon, golden eagle, red-tailed hawk, Swainson's hawk, northern harrier, and American kestrel. All are protected and managed under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et. seq.), and Executive Order 13186. Golden eagles are also protected by the Bald and Golden Eagle Protection Act, as amended in 1990.

Greater Sage-grouse – On March 23, 2010, the US fish and Wildlife Service determined sage grouse warrant protection under ESA, but was precluded from listing due to other species of higher priority. Habitat loss, from the different ways discussed above, is the leading cause of sage-grouse declines across its range.

In March 2010, a BLM Instruction Memorandum (IM 2010-071) directed field office managers to implement appropriate sage-grouse conservation actions based on priority sage-grouse habitat. Up until that point, Idaho's sage-grouse habitat had been classified on vegetation characteristics.

In contrast, Priority habitat (PH) is defined as "the habitat of highest conservation value relative to maintaining sustainable sage-grouse populations range-wide". The IM also directed managers to identify general habitat (GH) areas, which represent areas of occupied sage-grouse habitat not contained in PH. Priority and General habitat are based on use of habitat by sage-grouse, whereas Key and R1-3 habitat are based on vegetation characteristics. Priority and General habitat areas were still being finalized during the development of this project. Priority and Key habitat are closely aligned in the PA as seen in Map 4. Recently, PH and GH were just being finalized. Key habitat and PH are closely aligned within the PA and the percentage of acres impacted by action alternatives is the same. Because the initial analysis was completed using Key habitat and since there is no difference in percentage of acres impacted between Key and Priority habitat, Priority habitat was not included in the analysis other than to illustrate that acres impacted are the same as Key habitat.

Table 4. Greater sage-grouse habitat classification and acres in the project area and Bruneau FO

Habitat Classification	Acres in the project area*	Acres in the BFO*
Key[1] Sage-grouse Habitat	218,994	1,306,291
Type I, Perennial Grasslands[2] (R1)	121,528	167,670
Type II, Annual Grasslands[3] (R2)	60,120	136,707
Type III, Conifer Encroachment[4] (R3)	0	41,877
Unclassified	19,749	252,104
Total Acres	**420,391**	**1,904,649**

*Based on the 2010 Greater Sage-grouse Habitat Layer

1 Key Sage-grouse Habitat consists of areas with generally intact sagebrush that provide sage-grouse habitat during some portion of the year.

2 Perennial Grassland: Sagebrush-limited areas characterized by perennial grass species composition and/or structure that should provide suitable potential nesting habitat in the future, once sufficient sagebrush cover is re-established (at least 10% canopy cover). Includes areas characterized by native and/or introduced perennial bunchgrasses.

3 Areas dominated or strongly influenced by invasive annuals such as cheatgrass (*Bromus tectorum*) or medusahead rye (*Taeniatherum caput-medusae*) or similar species. Areas with sagebrush may be present, but, in general, understories are not suitable for sage-grouse. Reclassify as Perennial Grassland once restoration seedings are determined to be successful.

4 Areas where junipers (*Juniperus* spp.) and/or other conifer species are encroaching into sage-grouse habitat.

It has also been recommended in WO 2012-IM 044, Attachment 1, *A Report on National Greater Sage-grouse Conservation Measures*, that BLM "design fuels management projects in priority sage-grouse habitat to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design". Additionally, BLM IM 2012-043 advises managers to "comply with the policies established in BLM IM 2011-138 Sage-grouse Conservation Related to Wildland Fire and Fuels Management."

State and federal agencies have readily acknowledged that the greatest threat to sage-grouse in southwestern Idaho and the Northern Great Basin is loss of habitat from fire (ISAC 2006; FWS 2010a). Habitat in the project area's lower elevations that have not burned consist mainly of large tracts of Wyoming big sagebrush and grasslands, much of which is considered to have a moderate to high risk of cheatgrass invasion (USDI 2009; Map 8. Cheatgrass Invasion Risk). In fact, lower elevation areas that have burned are infested with cheatgrass. Habitat in higher elevations is generally in very good condition and supports a shrub steppe mosaic of low, mountain and Wyoming big sagebrush; antelope bitterbrush; scattered aspen patches; and

perennial grasslands. Low sagebrush provides suitable lekking habitat, while big sagebrush species provide suitable nesting. State Highway 51 runs roughly through the center of the PA.

Garton et al. (2011) conducted a comprehensive analysis of sage-grouse populations throughout the species' range by accumulating and analyzing counts of males at 9,870 leks identified since 1965. Trends for the NGB population, as indicated by average number of males per lek, declined by 37% from 1965–1969 to 2000–2007. Average number of males per active lek followed the same pattern over the assessment period and declined by 17%. The sage-grouse carrying capacity in the Northern Great Basin population is projected to decline by 73% between 2007 and 2037 if current trends continue (See Fed Register 2010 Vol 75 No. 55 page13960-13961 citing Garton et al. 2011). Based on a minimum population estimate of 9,114 males (SE 520) in 2007, Garton et al. (2011) concluded that there is a 100% probability that the population of sage-grouse in the NGB would drop below 500 individuals in 100 years. The 2010 FWS12-Month Findings for sage-grouse cited Knick and Hanser (2011, page 13961) that fire within 54 km (33.5 miles) of a lek was identified as one of the most important factors negatively affecting sage-grouse persistence on the landscape scale. During the last five years, 115,217 acres in the BFO have burned and 124,449 acres during the last ten years. Based on BLM GIS layers, 273,749 acres of Key Habitat and 195,406 acres of perennial grassland habitat were lost in the Murphy Complex alone.

Sage-grouse numbers have been monitored for several years, by both aerial and ground surveys of active leks and from harvest data. Harvest data, for a 10-year average, indicate a direct loss of approximately 8,100 sage-grouse resulting from statewide hunting, of which approximately 1,445 birds are harvested from southwestern Idaho, which includes the PA (IDFG 2010).

Data from annual aerial surveys in the Grasmere block overlapping the PA, indicate that populations declined by 60% from 2005 to 2008 (Figure 5). However, numbers have continued to increase since the 2008 survey.

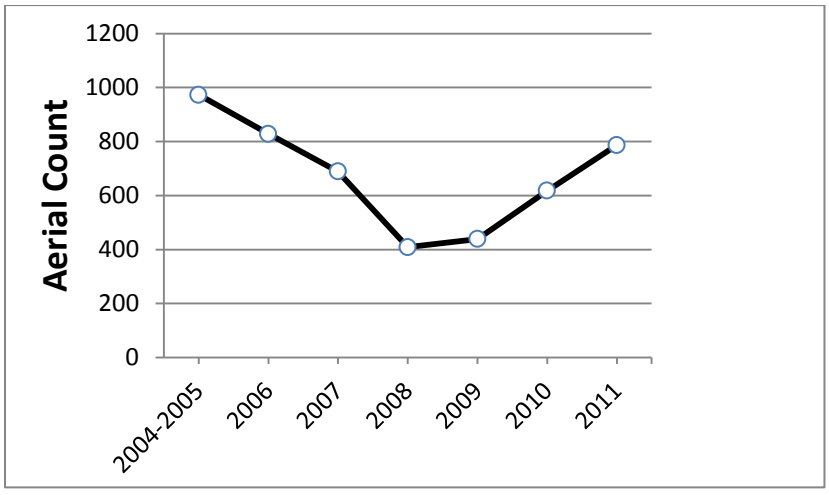

Figure 5. Male lek attendance in annually-surveyed area (Grasmere Block) from 2005-2011

While many factors can impact sage-grouse numbers within a short timeframe, as seen above, large scale habitat loss, caused by fire, development, or invasive vegetation, can cause long-term or permanent habitat loss. Long-term loss of habitat leads to reduced bird numbers that can last for decades or cause permanent extirpation from the impacted area. Throughout the Snake River Management Zone and the Northern Great Basin population range, numbers of sage-grouse and acres of suitable habitat have declined. In Idaho, areas such as the Jarbidge FO, Owyhee range, and Big Desert, have experienced long-term or permanent habitat loss of hundreds of thousands of acres from fire, human development, and juniper encroachment. This loss of habitat has negatively impacted sage-grouse numbers. Human development in rural areas and levels of use in the Owyhee Front is expected to grow, increasing the importance of habitat in the PA of even higher value for long-term protection.

Brewer's Sparrow – Migratory birds are protected and managed under the MBTA of 1918, as amended, and Executive Order 13186. Accordingly, nests with eggs or young of migratory birds may not be harmed nor may migratory birds be killed. Executive Order 13186 directs Federal agencies to promote the conservation of migratory bird populations. Brewer's sparrow is a BLM Sensitive species and FWS Bird of Conservation Concern throughout its breeding and wintering ranges (USDI 2002). The Audubon Society has given the Brewer's sparrow a watch list status of yellow, which indicates species that are either declining or rare (Butcher et al. 2007).

This sparrow is considered a sagebrush obligate species, meaning it requires sagebrush for some aspect of its life history. Brewer's sparrows are associated with sagebrush shrublands dominated by big sagebrush with perennial bunchgrasses (Paige and Ritter 1999). In the Snake River Birds of Prey National Conservation Area, Brewer's sparrows were more likely to occur in sites with high shrub cover and large patch size, and associated with Wyoming big sagebrush communities (Knick and Rotenberry 2002). This species has been documented in the PA; currently thousands of acres of suitable habitat exist. However, over the last decade, hundreds of thousands of acres of Brewer's sparrow habitat has been lost to wildfire in southern Idaho. Population declines on breeding areas are likely linked to extensive alteration of sagebrush shrub steppe habitat (Holmes and Johnson 2005).

Brewer's sparrow and other sagebrush obligate species that occupied burned areas have been displaced, making the remaining sagebrush habitat more important and in need of protection from large wildfires. Brewer's sparrow would benefit from the maintenance of large, continuous stands of sagebrush habitat.

Other migratory species within the project area include sage sparrow, sage thrasher, loggerhead shrike, western meadow lark, vesper sparrow, burrowing owl, and green-tailed towhee. The Brewer's, sage, and black-throated sparrows and loggerhead shrike are all Idaho BLM Sensitive Species.

Western Ground Snake – The western ground snake is the smallest snake species in the Bruneau Field Office and is found in Idaho in the Lower Snake River Valley (Idaho Department of Fish Game 1994) in arid and semi-arid habitat, especially near talus. It is usually associated with loose soil. This species has been documented at the north end of the project area (M. McGee, personal observation 2010).

Other reptiles that do or may exist within the project area include several species of lizards and snakes. Lizard species include sagebrush, western fence, longnose leopard, shorthorned, desert horned, side-blotched, western whiptail, and Mojave black-collared lizards, and western skink. Snakes include western terrestrial garter, common garter, gopher, longnose, and night snakes; striped whipsnake; rubber boa; western rattlesnake; and racer. The Mojave black-collared lizard and western ground, longnose, and common garter snakes are Idaho BLM Sensitive reptiles.

Pygmy Rabbit – The pygmy rabbit is the smallest North American rabbit species (USFWS 2010b). On September 30, 2010, FWS determined that pygmy rabbits do not warrant listing under the ESA; however, it is still managed as a special status species by both BLM and IDFG.

They are typically found in tall, dense sagebrush cover and considered a sagebrush obligate species because they are highly dependent on sagebrush to provide both food and shelter throughout the year (Green and Flinders 1980; Katzner *et al.* 1997). Pygmy rabbits have been found from 2,900 feet to over 6,000 feet in elevation in southwestern Idaho. The species was documented within the project area during 2011 surveys. Seventeen sites were identified, and and photo documentation was used to identify rabbits at several of them. All sites were in the ecological site with loamy soil 13”-16”, with vegetation dominated by mountain big sagebrush, bluebunch wheatgrass, and Idaho fescue. This species would be expected to exist in and around the PA anywhere there are deep loamy soils with sufficient annual precipitation to support suitable vegetation. Other ESDs that may support pygmy rabbits include areas with a precipitation range of 12 to 16 inches with mountain and Wyoming big sagebrush species and an understory of Idaho fescue, and bluebunch wheatgrass, and dry meadow areas with an understory of Sandberg bluegrass, and mountain Timothy. While all of these ESDs were surveyed, rabbits were detected in only one ESD. There are approximately 30,336 acres of the potentially suitable ESDs within the PA. No mowing would occur within 50 feet of occupied pygmy rabbit burrows.

Several small mammals also occupy suitable habitat within the area, including coyote, black-tailed jack rabbit, white-tailed antelope squirrel, cottontail rabbit, least chipmunk, Belding’s ground squirrel, deer mouse, badger, bobcat, and Ord’s kangaroo rat.

Pronghorn Antelope – This species roams throughout the project area during the summer, and migrates to lower elevations with less snow and more forage during winter. In the summer, groups can be small, but in the winter they tend to congregate in larger groups. Antelope in Management Unit 41 are meeting IDFG’s management objectives (J. Powell, personal communication, 2011).

Other large area mammals include mule deer, Rocky Mountain elk, bighorn sheep, and mountain lion. Bighorn sheep are a BLM and IDFG special status species, but not included in the analysis because they are generally found in canyon areas where no treatments would occur. The amount of roadside proposed for treatment near preferred bighorn habitat is minimal and effects to the species would be negligible.

3.3.2 Environmental Consequences

3.3.2.1 Alternative A

Areas of suitable wildlife habitat would remain in their current condition until a wildfire event occurs, at which point habitat be degraded. Without fuel breaks, the likelihood of losing larger tracts of sage-grouse and other wildlife habitat from wildfire would remain. A large wildfire in sagebrush habitat would negatively impact sage-grouse for 25-120 years based on sagebrush species and growing conditions (Baker 2011 pp. 194-195). Habitat in the northeastern portion would continue to degrade, with the spread of invasive annuals reducing the fire return interval. Because large fire risk would not be reduced under this alternative, its effects to representative species are discussed below.

Ferruginous Hawk – No fuel breaks would be created and habitat for ferruginous hawk would remain unaltered unless a fire was to occur. In the event of a wildfire that destroys sage steppe habitat, ferruginous hawk habitat would be degraded. Olendorf (1993, page 24 citing Schmutz and Hungle 1989, pg. 368, and Woffinden and Murphy 1989, pg. 1,128), stated that ferruginous hawk productivity is affected by the densities of major prey. Study results from White and Thurow (1985, pg 20), Smith et al. (1981, pg 54), and Woffinden and Murphy (1977, pg 422; 1989, pg 1,128) all indicate a correlation between the number of jackrabbits and the numbers of ferruginous hawks laying eggs, eggs laid, and young produced. Larrison and Johnson (1981 pg. 36) state that jackrabbits prefer sagebrush and the lower foothill grasslands, and in late summer often move to adjacent hayfields. Yensen et al. (1992) found that squirrel numbers were fluctuating and decreasing and they attributed this to loss of suitable forage in burned areas. The loss of sagebrush habitat in the PA would reduce jackrabbits and other prey species, which would reduce the productivity of the area for ferruginous hawks at the local and possibly at a population scale.

Additionally, the conversion of native shrub-steppe habitats to non-native annual grasslands through altered fire regimes is a serious threat to ferruginous hawks in the Intermountain West (Collins and Reynolds 2005 pg. 24).

Greater Sage-grouse – Conditions for this species would remain unchanged, until a wildfire occurs. Destruction of suitable sage-grouse habitat by wildfire would take from 25-100 years to recover in good conditions for mountain big sagebrush and from 50 to 120 years for Wyoming big sagebrush (Baker 2011). This alternative would not reduce the threat and potential for losing large habitat tracts would not be reduced. Research indicates that fire negatively impacts sage-grouse habitat for several years (USFWS 2010a; Knick and Hanser 2011; ISAC 2006), including areas where the habitat consisted of mountain big sagebrush (Nelle et al. 2000). Blaisdell et al. (1982) documented mountain big sagebrush response, in southeastern Idaho after a severe fire, and found it took 30 years for sagebrush to dominate the site. Nelle et al. (2000) also found that burning had a long-term negative impact on nesting habitat because sagebrush required over 20 years of post-burn growth for sufficient percent canopy cover. Various researchers have indicated that sagebrush areas destroyed by fire are of limited to no use to sage-grouse, resulting in long-term habitat loss that require decades to recover (Nelle et al. 2000; Beck et al. 2008; Connelly et al. 2000b; Fischer et al. 1996). Slater (2003) observed sage-grouse using burned areas but they were never further than 60 meters from the burned/unburned edge. Other

researchers have indicated that sage-grouse avoid burned areas in sagebrush landscapes because habitat characteristics, important for nesting, brood concealment, and food, are destroyed by fire and have slow recovery rates (USFWS 2010a; Knick and Hanser 2011).

Fire can also reduce connectivity over large geographic areas, potentially impacting sage-grouse at local, sub-population, and management zone scales. The negative effects of fragmentation on sage-grouse are diverse and include reduced lek persistence, lek attendance, winter habitat use, recruitment, yearling annual survival, and female nest site choice (FWS 2010c).

Knick and Hanser (2011) state that sage-grouse may continue to avoid burned areas even after sagebrush has recovered. They also say that fire, within 54 km (33.5 miles) of a lek, is one of two primary factors in predicting lek extirpation; small increases in the amount of burned habitat surrounding a lek had a large influence on the probability of abandonment. Therefore, the loss of several thousand acres of habitat to fire, within a stronghold sage-grouse area, would have detrimental population consequences at the local, sub, and management zone population scale.

In 2006 on the Burns (Oregon) District BLM, the Pueblo Mountain Fire burned approximately 60,000 acres; thousands of which supported both mountain big and Wyoming big sagebrush. Based on the recovery level thus far, it is estimated that mountain big sagebrush will take 20+ years on south slopes and flats and 10+ years on north slopes to attain 10 percent canopy cover, thus becoming suitable sage-grouse habitat (M. Obradovich, personal communication, 2011). The areas of Wyoming big sagebrush will likely take 40-50 years to become suitable habitat. This fire also burned across seven lek sites. Since the fire, male lek attendance has steadily decreased by 80 to 90 percent of pre-fire numbers. One lek, that had over 100 males attending before, is now down to 20.

Large scale habitat loss often leads to extirpation of sage-grouse from the impacted area, although this can take a few years to occur as birds demonstrate site fidelity such as that resulting in the Pueblo Fire example above. More recent data from the Murphy Fire Complex also illustrates a time lag in the decline of lek attendance and that over the long term, sage-grouse and sagebrush obligate species are expected to continue to decline due to habitat fragmentation effects such as lower reproductive rates, and higher predation and parasitism rates (Moser and Lowe 2011). While sage-grouse would likely return once suitable habitat has recovered, this could take many years to occur. Additionally, the area may not recover to suitable habitat due invasive annuals and noxious weeds, and would be unsuitable for an unknown period of time.

Brewer's Sparrow – Habitat for Brewer's sparrow would remain unchanged unless a fire was to occur. Additionally, the ability to effectively manage large wildfires would not be improved, and loss of large tracts of sagebrush habitat would negatively impact the species. Holmes and Johnson (2005) identify fire as a threat because it removes shrub cover, fragments large sagebrush tracts, and can reduce patch size to unacceptable levels. Knick et al. (2005) indicate negative fire responses by the sparrows, except for one burn where only 45 percent of existing shrub vegetation was lost. Given that hundreds of thousands of acres of sagebrush habitat have recently burned in southern Idaho, additional large fires would cause even greater impacts to this species. The Murphy Complex alone burned over 500,000 acres.

Western Ground Snake – Habitat for western ground snake would be altered in the event of wildfire but there is little knowledge of the direct effects of habitat alteration. In regards to direct mortality from fire events, studies and monitoring of fire effects to reptiles indicate that there is relatively little wildfire mortality (Russell et al. 1999). Reptiles are thought to seek refuge below ground, under rocks or similar protective cover or move out of the fire's way. Russell et al. (1999) cite a five year study, completed by Means and Campbell (1981) that included five prescribed fires in the study area. During those five fires, they documented two of 68 marked rattlesnakes that died. Both of them were shedding their skin, which likely affected their ability to sense or escape the fire. Over several years of wildfire suppression and rehabilitation involvement, only a few reptile mortalities have been observed, while several species of lizards and snakes have been observed in burned areas (M. McGee, personal observations, 1993 – present). Although, two western ground snakes were found dead during post-fire monitoring of the fast moving 29,000 acre Crowbar Fire that burned part of the project area in 2010 (Ibid).

Indirect effects to reptiles from fire may have greater impacts over time. A study completed in California suggests that indirect effects to habitat such as habitat suitability and predator-prey interactions were largely responsible for the changes observed in abundance and diversity of reptiles (Rochester et al. 2010, pg. 345). They found that species preferring more open habitats increased, while those that preferred greater levels of cover, decreased over time. The western ground snake prefers sandy desert type habitat, which are usually more open, and are mainly nocturnal, so it is likely that this species would not be as negatively impacted as those species that prefer more cover and are more diurnal.

Pygmy Rabbit – Suitable pygmy rabbit habitat would be degraded in the event of a large wildfire. Without fuel breaks, there would be no improvement in conditions to effectively suppress large-scale wildfire. The loss of suitable sagebrush habitat would have negative effects to pygmy rabbit. USFWS (2010b) cite Gates and Eng's 1984 study documenting the deaths of "several" pygmy rabbits in an area where fire advanced rapidly within an Idaho prescribed burn. Gates and Eng also reported that two months following fire in a big sagebrush-grassland community, only three of 11 radio-collared rabbits were alive. Of the eight lost, seven were due to predation. They speculated that the loss of big sagebrush from the rabbits' home ranges probably increased predator vulnerability. Additionally, losses of sagebrush cover from fire result in less forage, increased habitat fragmentation, and abandonment of home ranges (USFWS 2010b).

While Larrucea and Brussard (2008b) found fire to be the strongest loss predictor for pygmy rabbits from Nevada and California sites, observations have been made of pygmy rabbits existing within burned areas; however, the sightings were associated with smaller burned areas (FWS citing Bockting 2007, White and Bartels 2002, and Waterbury 2005).

Pronghorn Antelope – Habitat would likely improve for this species in the event of a large wildfire. As a primarily forb-eating species with strong requirements for open cover, pronghorn are favorably influenced by herbaceous species' increases and shrub reduction after fire (Higgins et al. 1989). Pronghorn used burned range significantly more than unburned range during the fall, after snow cover is melted in winter, and early spring (Courtney 1989). Nutritional forage benefits after fire, including higher levels of protein and minerals, may last up to four, post-fire

years with an increase in primary productivity for a longer period, depending upon plant species (Howard 1995 citing USDI 1966). Although pronghorn benefit from fire as noted above, habitat loss to cheatgrass and increased fire frequency would not be beneficial.

3.3.2.2 Alternative B

Habitat composition and structure would be altered where treatments are completed through greenstrip establishment, herbicide spraying, and roadside mowing of shrubs; these are analyzed for the representative species. Wildlife impacts from herbicide treatment would be negligible.

Ferruginous Hawk – There would be no direct or indirect effects to this species.

Greenstripping/Mowing Roadside Shrubs – Since ferruginous hawks prefer open shrub steppe and grassland habitat, they would not be impacted by changes resulting from any of the proposed treatments. There are no known Ferruginous nest sites within the project area, and few nesting trees are available. Since ground nests are typically located far from human activity, they would likely not be constructed near roads (Dechant et al. 2003). No negative impacts would occur from implementation of the proposed action because the amount of habitat alteration would not reduce prey numbers.

Greater Sage-grouse – During scoping, issues concerning the effects to sage-grouse were received. The issues and how they would be addressed or why they are a non-issue is explained below:

1. Habitat fragmentation – There are no exact figures that define what constitutes fragmentation when considering areas of mowed sagebrush. Sage-grouse regularly utilize mowed alfalfa fields when available (FWS 2010 pg. 7 citing Schroeder et al. 1999; Connelly et al. 2000a pg. 971), and open grassy meadows grazed by livestock (Beck and Mitchell 2000; FWS 2010 pg. 30 citing Klebenow 1981). Sage-grouse also utilize and travel through areas of low sagebrush, which often consists of vegetation around 12" in height. Low shrub height or grassy areas that would exist after mowing do not constitute fragmented habitat or a movement barrier because sage-grouse readily move from big sagebrush habitat into low sage areas. The PA is a mosaic of low sagebrush and big sagebrush species. In contrast, large fires do fragment habitat and can leave thousands of acres unsuitable to sage-grouse for decades.

2. Disturbance to lekking birds – No ground disturbing activities would occur after February to prevent disturbance to lekking sage-grouse. Jenni and Hartzler (1978) found that males began attending leks in early March in Montana. Dalke et al. (1963) indicated that in the Big Desert area of Idaho, male lek attendance begins in March and increases rapidly during the first two weeks of April. Activity restrictions near leks normally begin March 15 at lower elevations in Idaho (Idaho BLM IB 2010-39) but restrictions for this project would begin March 1.

3. Loss of habitat from cheatgrass invasion – Those areas where cheatgrass is prevalent and in areas where it increases to moderate or thick densities after mowing or greenstrip development would be treated with imazapic. Baker and Lyon (2009) noted a 67% reduction in cheatgrass in their study but they acknowledge other studies that have had near 100% reduction (Kyser et al. 2007; Shinn and Thill 2002). Treatment with imazapic would impact some native species as well but the area treated would be much less than the average acres burned each year in the BFO (12,444 acres) based on the last ten years of fire data. Post-project monitoring would be completed to identify areas that need treatment. The proposed treatment areas near roads would

be much easier to monitor and treat in comparison to miles dozer lines associated with fire suppression.

Sage-grouse and their habitat would be impacted to varying degrees based on the treatment. Vegetation structure would be altered through mowing and greenstrip treatments, but sage-grouse would not avoid treated areas. Destin Harrell (BLM Biologist) observed sage-grouse roosting in mowed sagebrush strips (personal communication, 2011). Greenstrips development would alter less than < 20 total acres of sagebrush habitat and maintenance may remove scattered or isolated sagebrush plants but the overall characteristic of vegetation within greenstrip areas would remain the same as current condition.

Lyon and Anderson (2003) determined that habitat near roads is of lesser quality due to disturbance. Disturbance levels along some roads in the PA during the time of lek attendance and nesting is minimal, so it would be expected that sage-grouse hens in the project area are not pressured to avoid establishing a nest near lesser used roads. To avoid disturbance during the breeding and nesting periods, seasonal restrictions would be implemented and ensure that lekking, nesting, and early brood rearing would not be interfered with (See project design features pg. 16). Reducing sagebrush cover by developing fuel breaks near roads would have much less of an impact when compared to a large area of habitat lost to fire.

Mowing Roadside Shrubs – This action would alter sagebrush and other shrub habitat along roadsides in a 100 foot-wide swath by mowing shrubs to a height of 6”-12” on 50 feet of each roadside or 100 feet on one side. This action would reduce cover for sage-grouse and alter available forage by 12 acres per mile. There are 92 miles proposed for mowing, which equates to a total of 1,115 acres. Of these 92 miles, 83 (1,006 acres) are in Key sage-grouse habitat which is 0.5% (rounded up from 0.45%) of the Key Habitat present in the PA. In comparison, the proposed action would impact 75 miles of Priority habitat or 900 acres, which is 0.5% (rounded from 0.47%) of the Priority habitat in the PA.

In contrast to the proposed action, there were 102,768 acres that burned in the BFO during 2010 and 2011. Eighty-two miles of dozer line were put in and 21,016 acres of Key habitat were destroyed. While mowing does alter vegetation structure, it is not complete habitat loss for sage-grouse.

Greenstrips – Development would occur in areas previously greenstripped or burned, where the threat of cheatgrass invasion is a major concern, and where cheatgrass is established. Of the 51 miles to be managed as greenstrips, 42 miles already exist but need maintenance treatment of either herbicide, seeding or both. Eleven miles of greenstrip are to be developed. Three miles would be developed along a roadside that has been identified as perennial grassland but is actually dominated by cheatgrass. None of these three miles are in Key habitat but 1.8 miles are within Priority habitat. There is minimal sagebrush in the 1.8 mile section and this is a negligible amount when compared to the PA and field office perspectives. The three miles of greenstrip to be developed are on the north side of a road that is dominated by cheatgrass while the south side has more sagebrush. Very little sagebrush would be removed (less than 20 total acres) to develop the three miles of greenstrip.

The remaining eight miles proposed for development are within the perimeter of the Big Hill Fire, where Key habitat was burned. Greenstrips would reduce the acreage burned by slowing

the fire's progress and providing an area for fire fighters to safely engage in suppression actions. If the fire return interval could be increased (longer time periods between fire events) in grassland areas, sagebrush would have the opportunity to reestablish and lead to restoration of suitable sage-grouse habitat. Temporary fencing to control livestock may be required to allow greenstrips to establish. There are no greenstrips within 2 miles of an active lek. Fencing would be constructed according to specifications identified in IM No. ID-100-2011-001 to reduce collisions by sage-grouse and other wildlife species and following the guidelines specified in BLM IM 2012-043.

The Bruneau Field Office has approximately 1,306,291 acres of Key sage-grouse habitat, 218,994 of which are within the PA. There are only 1006 acres of Key habitat altered by the proposed action or 0.5% (rounded from 0.45%). That equates to less than 0.08% of the Key habitat in the BFO (Table 5). Additionally, the proposed action would alter 1,236 acres or 0.6% of perennial grassland R1 sage-grouse habitat in the PA. The amount of quality habitat impacted by the proposed action would have negligible effects to sage-grouse, especially since the area impacted is adjacent to roadways. Seasonal restrictions would provide extra protection to sage-grouse from potential effects due to project implementation.

Research into large scale fires, which this project would help prevent, have demonstrated detrimental impacts to multiple life stages of sage-grouse that can last for decades (see Alternative A - Impacts Analysis). Implementing the proposed action would reduce the likelihood of large scale fire and widespread habitat loss across thousands of acres, as well as the associated time necessary for vegetation recovery if the burned area were able to recover. There is habitat loss with the proposed action; however, this loss is negligible and not expected to have detrimental effects to sage-grouse. Protecting large tracts of sage-brush from wildfire would provide long-term benefits to sage-grouse.

Table 5. Alternative B: Miles of treatment in sage-grouse habitat types

Habitat Type	Mowing	Greenstrip Develop	Greenstrip Maintenance
Key	83	0	4*
Perennial Grassland (R1)	9	3	28
Annual Grassland(R2)	0.0	0.0	10
Burned (2011 Big Hill Fire)	0.0	8	0.0
Totals	92	11	42

*This Key habitat is being maintained and these acres are not included in Key habitat acres altered.

Because such a small proportion of the quality habitat available to sage-grouse in the PA and surrounding region is impacted from proposed actions and the treatments are next to roads, and because appropriate design features are incorporated, effects to sage-grouse would be negligible.

Brewer's Sparrow – This species is a sagebrush obligate, identified as an umbrella species to sage-grouse, which means habitat use overlaps so that projects completed to protect or benefit sage-grouse would also benefit Brewer's sparrow (Hanser and Knick 2011). Hanser and Knick

(2011) state that completing landscape level projects, such as the proposed action, increases benefits to sage-grouse umbrella species.

Greenstrips – Development of greenstrips along three miles of road would lead to the estimated loss of less than 15 sagebrush acres. The sagebrush habitat along this road is marginal for Brewer's sparrow because it is in small patches and not part of a contiguous stand. Sagebrush in the other five miles of proposed development was destroyed during the 2011 Big Hill Fire. The sagebrush amount lost, due to greenstrip development, would have negligible effects to this species due to its location near roads, patchy distribution and small acreage removed. Species that prefer grassland areas would have their habitat maintained or improved through the establishment and maintenance of greenstrips.

Mowing Roadside Shrubs – Mowing would reduce habitat for Brewer's sparrow by approximately 1,115 acres, which is less than 1% of the suitable habitat within the PA.

Ingelfinger and Anderson (2004) studied the effects of roads developed for energy extraction on passerine birds. Overall, they found that within a 300-foot zone along dirt roads, there was a 39% reduction of sagebrush obligate bird species, 36% for Brewer's sparrow, when compared to areas outside the 300 foot zone. They could not identify the cause of the reduced habitat use, but there is some factor that reduces species' density near dirt roads. This indicates that habitat within 300 feet of dirt roads is less suitable than habitat farther away. It is likely that sagebrush obligate use is less within the first 50 feet closest to a road, and that use level increases in habitat farther away. Their study evaluated a zone 300 feet from dirt roads, which is a much greater area than the 50 - 100-foot width proposed for mowing.

Loss of marginal habitat from mowing along roads would be less of an impact than a fire that burned quality sagebrush habitat across hundreds or thousands of acres. Mowing along dirt roads would not have a significant effect to breeding success, due to reduced roadside usage and less than 1% of the available quality habitat within the PA would be impacted.

Western Ground Snake – There could be limited mortality to this or other snake species from project implementation but most snakes would be expected to move away from oncoming tractors. Additionally, implementation of proposed actions would likely begin in late September when snakes in the Northern Great Basin are beginning to concentrate near winter dens in rocky areas that would not be treated and implementation would be terminated before snakes emerge from dens in the spring.

Greenstripping – The areas where greenstrips would be maintained or created would not degrade habitat for this species or its prey. There would be minimal amounts of sagebrush disturbed.

Mowing – Some loss of canopy cover from mowing would occur, but there would still be cover present with 6" to 12" of shrub stubble, mowing debris, and grasses and forbs. Mowed areas may attract some prey species, especially for the snakes that feed on mice, chipmunks, and ground squirrels.

Pygmy Rabbit – Surveys for the presence of pygmy rabbits were completed during summer 2011. Surveys involved walking and looking for burrows in potential habitat, as defined by Ulmschneider et al. (2004) in potential treatment areas. Trail cameras were also used to determine if burrows were active, which has been shown to be the most effective method for documenting presence of pygmy rabbit (Larrucea and Brussard 2008a). Areas where active burrows were identified and potential habitat ESDs would be resurveyed one week before treatment to determine if burrows are still active or if new burrows are present. Potential habitat may be impacted but the area was surveyed and active pygmy rabbit burrows would be buffered 50' from mowing. Burak (2006 pg. 83) documented that pygmy rabbits utilize low sagebrush sites in their home range. While the 50' buffer would be on both sides of the burrow and extend back to un-mowed shrub cover to provide a travel corridor without open areas, Burak's (2006) documentation of pygmy rabbits use of low would indicate that they would not be adverse to utilizing or travelling across mow strips.

Seventeen burrow sites were located during the surveys; all were in the ecological site loamy 13-16 inches, with vegetation dominated by mountain big sagebrush, bluebunch wheatgrass, and Idaho fescue. Distribution of pygmy rabbits within the PA is closely tied to one ecological site, which correlates closely to where rabbits have been found throughout southwestern Idaho during other surveys. Other ESDs that may support pygmy rabbits include areas with a precipitation range of 12 to 16 inches with mountain and Wyoming big sagebrush species and an understory of Idaho fescue and bluebunch wheatgrass, and dry meadow areas with an understory of Sandberg bluegrass, and mountain Timothy. While these ESDs were surveyed, no rabbits were detected.

Greenstripping – Greenstripping would not involve removal of suitable sagebrush habitat; and most greenstrip areas would basically remain the same. Over time (30-60 years), successful greenstrips would allow sagebrush to re-establish in interior areas that have lost sagebrush from frequent burning.

Mowing – Fourteen miles of mowing is proposed in the one ESD type that pygmy rabbits were detected in. The mow would reduce sagebrush cover over 170 of the 25,027 acres, or 0.7%, of that ESD in the PA.

Wilson et al. (2011) studied the effects of sagebrush treatments to pygmy rabbits in patches varying from 12 to 138 acres. They did not observe that treatments affected the general placement of pygmy rabbit home ranges, and that limiting treatment placement, by creating large no-treatment buffers, may be unnecessary. Treatments near occupied pygmy habitat should be small, narrow, and widely spaced. They further recommend that, in lieu of islands of intact sagebrush in a matrix of treatments, treatment mosaics should more closely resemble islands of treatment in an untreated matrix. In other words, instead of having many small patches of sagebrush, five to ten acres for example, surrounded by hundreds of acres of treated sagebrush, it should be reversed so that small areas of treated sagebrush are surrounded by large areas of untreated sagebrush.

The proposed action follows guidelines identified in this research. The BLM would buffer occupied habitat, and mow strips would be narrow, small (area actually treated in a square mile),

and widely spaced across the landscape. The proposed treatments would also have treated areas surrounded by large areas of untreated sagebrush stands. Effects from the proposed action would be minimal, due to project design, small percentage of suitable habitat impacted, and surveys in preferred habitat would be completed, within one week before treatment, to identify new burrows. Active burrows would have 50-foot buffers.

Pronghorn Antelope – Pronghorn would be temporarily disturbed by project implementation, but would benefit from the habitat changes. Mowing sagebrush does reduce winter habitat for ungulates (Davies et al. 2009), however the amount of habitat impacted by the proposed action would have negligible impacts to wintering ungulates in the PA. In contrast, impacts from burning thousands of acres of quality habitat away from roads would potentially have severe impacts to wintering ungulates that would last for decades.

Greenstripping – Seed selection for greenstrips would include site-appropriate species and of value to ungulates. A reduction of non-native annuals would result, benefitting desirable plant species and animals that utilize them as forage. Greenstrips would reduce the likelihood of fires crossing roads and burning through large grass stands, augmenting sagebrush establishment to provide future pronghorn cover. Sagebrush establishment could take 30 to 60 years or more.

Mowing – This action would reduce cover in the 100-foot wide area near roads; however, this would have no measurable effect on pronghorn. They are sensitive to traffic and flee by running away from approaching vehicles. There would still be vast areas available for fawning when sagebrush cover is needed. The mowing may increase desirable forage, including forbs and grasses.

3.3.2.3 Alternative C

Greenstrips provide greater effectiveness in controlling wildfire, but they alter a greater number of wildlife habitat acres. The vegetation community would be altered by replacing existing shrub communities along roadsides with low growing or fire resistant vegetation in swaths of 300 feet (150 feet on each side or 300 feet on one side). The amount of sage steppe habitat established to greenstrips would be 36 acres/mile for 90 miles or 3,272 acres. Roadside vegetation within the greenstrip would be replaced with species known to be effective fuel breaks and able to successfully establish in a given soil type and precipitation regime. Overall, there would be an increase of 2,157 acres of sage steppe habitat alteration when compared to the proposed action. Treatment widths would be three times greater than the proposed action and this alternative may require more temporary fencing to protect greenstrips from livestock while the seeded vegetation becomes established. Fence building would follow guidelines and management direction identified in BLM IM 2012-043.

Ferruginous Hawk – This species would benefit from the proposed action. Ferruginous hawks prefer open sagebrush steppe and grasslands. Small mammal species may increase in the seeded areas and jackrabbits would also be attracted to the greenstrips (Fagerstone et al. 1980). Jackrabbits are a major prey species of ferruginous hawks, as well as other area raptors.

Greater Sage-grouse – There would be more sage-grouse habitat impacted by establishing greenstrips throughout the project area, as compared to Alternative B. Treated roadsides would

be 300 feet wide (150 feet on each side or 300 feet on one side), and planted with fire resistant or low stature vegetation. A three hundred foot wide fuel break would likely lead to restricted use nearer to roadsides. Greenstrips would be representative of R1/perennial grassland habitat, which sage-grouse do use. Sage-grouse would be expected to forage closer to sagebrush edges, which would be 150 feet from roadsides and that could benefit sage-grouse by reducing disturbance from vehicles and reduce hunter success. Seasonal restrictions for project implementation would protect sage-grouse from disturbance during lekking, nesting, and early brood rearing. Temporary fencing would have a higher likelihood of impacting sage-grouse because the greenstrips would be developed in areas with higher concentrations of sage-grouse.

There would be a total of 3,491 acres (36.36 acres/mile) of Key sage-grouse habitat impacted by development and maintenance of greenstrips or 1.6% of the Key habitat in the PA and 0.3% of the Key habitat in the FO (Table 6). There would be 2,763 acres of Priority sage-grouse habitat impacted by development and maintenance of greenstrips or 1.5% of the Priority habitat in the PA. While this treatment would lead to greater habitat alteration acres near roads, when compared to Alternative B, it would provide better protection for large, intact sagebrush habitat.

Table 6. Alternative C: Miles of treatment in sage-grouse habitat types

Habitat Type	Mowing	Greenstrip Develop	Greenstrip Maintain
Key	0	92	4*
Perennial Grassland (R1)	0	12	28
Annual Grassland(R2)	0	0	9
Total Miles	0	104	41

Greenstrips would provide greater likelihood of successfully holding fire within treated areas and keeping fires small would benefit sage-grouse.

Brewer's Sparrow – The treatment would lead to a loss of 3,527 acres of sagebrush habitat for this species. Policy in BLM Manual 6840.06 states, "Actions authorized by the BLM shall further the conservation and/or recovery of federally listed species and conservation of Bureau sensitive species. Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA".

There would be negative impacts to this species from the extent of habitat alteration. Impacts must be weighed against the loss that would occur from a large fire, which could have far greater impacts, i.e., 3,527 acres versus the >102,000 acres burned in 2010 and 2011. While there would be habitat loss, the objective is to protect thousands of acres for a more imperiled species (sage-grouse), which, in turn, would benefit Brewer's sparrow.

Western Ground Snake – There would be no direct effects from greenstrip establishment because implementation would likely begin in late September when snakes, in the Northern Great Basin, are preparing to enter winter dens and likely near rocky den sites. Greenstrips would not reduce prey species or habitat suitability for this or other snake species.

Pygmy Rabbit – There would be a loss of sagebrush cover over 509 of the 25,027 acres, or 2.0%, within the ecological site where rabbits were found. This is an increase of 339 acres when compared to the proposed action. Effects from the proposed action would be minimal, due to project design, small percentage of suitable habitat impacted, and additional surveys in ESDs that may support pygmy rabbits would be completed within one week before treatment to identify new burrows. Active burrows would have 50-foot buffers.

Pronghorn Antelope – Since pronghorn prefer open sagebrush and grassland habitats, there would be no direct effect except temporary disturbance. The greenstrips would benefit pronghorn by increasing grass and suitable forb species within the treated areas. There would be a reduced risk of large scale fire. Greater amounts of winter habitat for other ungulate species would be altered, with the greatest impact to mule deer that feed extensively on sagebrush. The greenstrips would provide some forage versus a large scale fire that could lead to widespread habitat loss for several years.

3.3.3 Cumulative Impacts

The cumulative effects scope can vary for wildlife, depending on the species considered; therefore, the scope is discussed by species. The temporal scope of analysis would be five years following treatment. It is expected, based on observations of wildlife response to similar treatments elsewhere (Michael McGee, Personal Observations), that wildlife would not avoid treated areas and there may not be any adjustment period necessary.

The scope of analysis for sage-grouse differs from the other wildlife analyzed in this EA (Map 8). Sage-grouse in and near the PA are migratory. Recent analysis by BLM of sage-grouse tracked by IDFG from April 2002 through December 2011 showed that birds travelled an average of 17.4 miles annually (sexes, ages, and years combined; BLM 2011). Those IDFG data represent the greatest straight line distance from the earliest location during the breeding period to all subsequent locations within an annual cycle and only data from birds characterized with information spanning breeding through winter seasons were used. The greatest distance documented for a single bird was 42 miles in distance. The cumulative effects analysis area for sage-grouse begins at the project boundary and extends outward for 52 miles to include all areas of Priority and General habitat in Idaho, several thousand acres of Core habitat in eastern Oregon, and several thousands of acres of Important and Essential habitat in Nevada. This analysis area was determined to be sufficient based on the following rationale:

- The furthest movement of a sage-grouse near the PA, documented from over nine years of telemetry surveys, was 42 miles. This 42 mile distance was then buffered by broadening it an additional 10 miles to include potential outliers.
- This area incorporates all seasonal habitats identified for sage-grouse in the PA,
- This area exceeds the premise that landscape characteristics at a 34 mile (54km) radius may influence sage-grouse seasonal movements and incorporate habitats used outside of the breeding season (Knick and Hanser 2011, pg 386; Leonard et al. 2000).

Additionally, because the analysis area is larger for sage-grouse, there are a greater number of actions occurring across the landscape and more actions are analyzed in the sage-grouse cumulative effects section for Alternative A.

3.3.3.1 Alternative A

The cumulative impacts from "status quo" management would be the same as those occurring after a large fire, in conjunction with present and foreseeable actions previously identified. Effects from large fire to each species being analyzed were previously discussed in the environmental effects and will not be re-stated here.

The analysis scope for species (except sage-grouse, Brewer's sparrow, and pygmy rabbit) in conjunction with Alternative A and a large fire event would include the PA and the surrounding burned habitat. An exact boundary would be speculative, due to variable conditions resulting from and unknown size of future fire events. Cumulative impacts from past, present and foreseeable actions, in conjunction with large fire effects, as described in the environmental effects, would occur if the impacts degraded habitat in and near the burned area.

Ferruginous Hawk – Analysis scope identified in the paragraph above.

Livestock Grazing and Trailing – Sagebrush habitat provides necessary cover for jackrabbits and other important prey items for ferruginous hawk. Loss of large tracts of suitable prey species habitat leads to reduced production and can lead to extirpation of ferruginous hawks from the burned area. These impacts occur at the local and population scale for ferruginous hawks. Based on the analysis of this action in the sage-grouse section below; grazing a burned area without adequate rest and proper management would slow the recovery of suitable habitat for jackrabbits and other prey items. This would have negative cumulative effects to ferruginous hawks.

Trailing along roads would have less likelihood of cumulative impacts due to the consolidated area impacted and raptors are so mobile.

Noxious Weed Treatment – Treatments would augment the re-establishment of desirable vegetation and no negative cumulative impacts would result.

Power line Maintenance – Maintenance actions would not cause measurable cumulative impacts due to their short duration and limited area impacted. Power lines would be repaired before the burned area recovered enough to provide suitable habitat. Additionally, power lines provide nesting sites for ferruginous hawks, especially when platforms are installed, such as those along Baja Road on the Boise District.

Greater Sage-grouse, Brewer's Sparrow, and Pygmy Rabbit – Cumulative effects of the project on the Brewer's sparrow and pygmy rabbit are assumed to be similar to those for sage-grouse. Recent literature supports the idea that because of the broad range of sagebrush habitats used by the greater sage-grouse on the landscape, it can be considered as an umbrella for other sagebrush obligate or associated species (Hanser and Knick 2011). The analysis area for Brewer's sparrow and pygmy rabbit does not need to extend to the same magnitude as sage-grouse but the effects of fire and actions that would impede recovery of suitable habitat following fire would have similar negative cumulative effects to all of these species. As

mentioned above, because the analysis area is much broader for sage-grouse compared to other species in this analysis, the cumulative effects analysis included wildfire, energy development, recreation, juniper (conifer) control, and urban development.

Wildfire – Past wildfires have destroyed millions of acres of sage-grouse and sagebrush obligate species' habitat across the west. This loss of habitat has led to reduced populations for some species. Fire is considered the biggest threat to the sagebrush ecosystem in southern Idaho and throughout much of the range of sage-grouse in Oregon, Nevada, and Idaho. Large wildfires are predicted to increase in the west as a result of trends in climate change (Baker 2011). Future wildfires would lead to greater habitat loss and stress on sagebrush obligate species including sage-grouse.

Livestock Grazing and Trailing – Suitable sage-grouse habitat takes many years to reestablish after being destroyed by fire. Sometimes there is no recovery, due to establishment of non-desirable vegetation and altered fire regimes. There are differing views on the impacts of grazing in recently burned areas. Bates et al. (2009) found no difference between grazed and ungrazed plots after a low severity, fall season prescribed fire. The fire in their study caused minimal, if any, mortality to perennial bunchgrasses coupled with an exceptionally wet spring during the study and there was a lack of a significant weed presence. Bates et al. (2009) also stress that the grazing in their study was closely supervised, which is necessary during post-fire vegetation recovery. Although Bunting et al. (1987) was discussing management after prescribed fire; their statement is probably more valid for areas burned by wildfire due to the more destructive characteristics of wildfires compared to prescribed fires. They state that "if livestock have premature access to a burned area, negative impacts may result unless management of the livestock occurs" (Bunting et al. 1987). They also identify that the amount of non-use necessary after a fire varies considerably with the vegetal composition, site conditions, and objectives of recovery (Bunting et al. 1987). Grazing typically resumes within two growing seasons after a fire. Post-fire management of livestock, both short and long-term, is essential for long-term maintenance of desired sagebrush canopy cover and herbaceous understory (Wyoming Interagency Vegetation Committee (WIVC) 2002, pg. 19-20). The WIVC guide (2002) indicates that the follow-up grazing strategy must be designed to maintain healthy, perennial plant cover. The challenge to maintain a healthy diverse sagebrush community lies in the proper balance of grazing pressure between grasses, forbs, and shrub vegetation components by season, and the ability to allow adequate recovery periods.

Past grazing in burned areas that was not managed to promote the recovery of sagebrush with the appropriate herbaceous understory would have negatively impacted sage-grouse and sagebrush obligate species. Cumulative effects of livestock grazing would occur if future burned areas are not allowed an adequate period of rest and if grazing would not be properly managed.

Livestock trailing along roads and complying with the stipulations for trailing would cause few impacts through burned areas, and not lead to cumulative effects.

Noxious Weed Treatment – Treatments would reduce the spread of noxious weeds that would compete with desirable vegetation trying to re-establish following fire. Noxious weed treatments

would benefit the recovery of burned areas. There would be no negative impact from treatment of noxious weeds in burned areas across the analysis area.

Energy Development, Electrical Transmission, Power line Maintenance, Communication Towers – Of the sagebrush obligates grouped in this analysis; sage-grouse would be impacted most by energy development and communication towers. Power lines and communication towers can lead to direct mortality of sage-grouse from collisions with wires. Structures also provide perching sites used by sage-grouse predators. Associated with energy development is the network of roads that is constructed. It is apparent from the scientific evidence that past and present energy development degrades habitat and is impacting sage-grouse populations (Naugle et al. 2011 pg. 500).

The BLM has been working on an EIS for a wind development project on China Mountain, which is in Jarbidge FO in Idaho and the Wells FO in Nevada. The decision for this project has been deferred. The proposed action is for the development of up to a 425 megawatt wind energy facility. The Applicants proposal consist of up to 170 wind turbines, 83 miles of all-weather gravel roads, 19 miles of overhead electric transmission line, up to 3 permanent meteorological towers, 3 electric substations, and 2 operation and maintenance facilities. The project area consists of the 30,700-acre area ROW preference area. This decision for this project was recently deferred until completion of the Idaho/Montana sub-regional sage-grouse EIS/Resource Management Plan amendments and Jarbidge Resource Management Plan revision.

Gateway West is a proposal to construct 1,103 miles electrical transmission lines from Glenrock Wyoming toHemmingway Butte in Idaho. The preferred or proposed route for the power lines crosses through 50 miles of Key and 54 miles of R2 (perennial grassland) sage-grouse habitat in Idaho. None are crossed in the PA. Several alternative routes are identified some of which could reduce the miles of suitable habitat impacted.

Any future communication towers or energy infrastructure constructed using current design methods would degrade habitat for sage-grouse and most sagebrush obligate species through the analysis area. This loss or degradation of habitat when added to the effects of fire would lead to long-term cumulative impacts.

There are several power lines throughout the analysis area for sage-grouse. Power line maintenance is usually of short duration but could impact sage-grouse lek behavior if work were to begin before 9:00 AM (ISAC 2006) and nesting hens could be disturbed by maintenance activities through June. However, in the event of a large wildfire, power lines would be repaired before the burned area recovered enough to provide suitable habitat for these species so there would not be cumulative effects from maintenance activities associated with wildfire. Cumulative impacts to Brewer's sparrow and pygmy rabbits would not occur because power lines are not a habitat limiting structure for these species and maintenance actions would be limited in duration.

Recreation – Of the recreational activities that occur on public lands, sage-grouse hunting and OHV riding pose the biggest threats to habitat and population numbers. Sage-grouse hunting still occurs throughout the analysis area. Off-highway vehicle (OHV) within the PA and through

much of the analysis area is low but there are areas with high levels of use in suitable sage-grouse habitat. Most areas of high OHV use occur near population centers, such as the Murphy OHV area, which is used heavily by people living in Boise and surrounding cities. OHV use is higher in the more remote areas during the fall hunting seasons but this limited period of use appears to have minimal impacts. There are no positive effects to sage-grouse from hunting or OHV use and these activities have and continue to have negative impacts to sage-grouse.

Hunting of sage-grouse is a direct reduction to the sage-grouse population and reproductive potential throughout the analysis area. The ten year average for annual sage-grouse harvest in southwest Idaho is 1,445 birds (IDFG 2010). As more and more suitable sagebrush habitat is destroyed by fire across the analysis area, the greater the impact hunting would have on maintaining viable populations and the possibility of sage-grouse expanding their range as habitat recovers from fire. Hunting would have cumulative impacts in association with the loss suitable habitat from large wildfires.

As levels of recreation increase across public lands, in particular OHV use, pressures on wildlife and their habitat would continue to increase. Areas that are remote with suitable sage-grouse habitat and low levels of OHV use will increase in their importance to sage-grouse persistence as areas with high levels of OHV would continue to have degraded habitat. Effects from OHVs include disturbance from noise and presence, causing abandonment of suitable habitat (extirpation), and fragmentation of habitat. Off-highway vehicles can cause direct mortality through collisions and indirectly from wildlife collisions with fences installed to control use (BLM 2009; Aldridge and Brigham 2001). Impacts from OHV use in conjunction with habitat loss from fire would lead to cumulative impacts to sage-grouse and sagebrush obligate species.

Juniper Control Projects – Juniper control has been ongoing at the mid- and broad scale levels in various locations throughout the Northern Great Basin including the Boise District BLM (i.e. Castle Creek). This is because juniper has been encroaching into sagebrush steppe across millions of acres throughout the west, which has led to the loss of thousands of acres of sage-grouse habitat. The Upper Castle Creek Project has treated on approximately 17,027 acres, which is far fewer than the acres that have burned in recent years. These projects would likely continue to be implemented to maintain and restore sagebrush steppe habitat with a focus on areas that would benefit sage-grouse. Effects of this action and large fire would not be cumulative because the effects of restoring and maintaining habitat are positive and would help offset the losses that occur from fire throughout the analysis area.

Fuel Break Development – The Twin Falls District of the BLM is proposing to develop 166 miles fuel breaks in the Jarbidge FO. These fuel breaks would likely be greenstrips 400 feet wide, 200 feet on each side of a road in areas that are occupied by vegetation that readily burns during the peak of fire season. There is little sage-grouse habitat in the area of their proposed fuel breaks, most of it being destroyed by large wildfires. Since there would be minimal loss to sage-grouse habitat, there would be no cumulative effects with the prosed action.

Human Development – Sagebrush steppe habitat lost to agriculture, rural, and urban development is occurring to some degree across the area. Human development in sagebrush steppe would be cumulative to sage-grouse, Brewer's sparrow, and pygmy rabbit with loss of suitable habitat

from fire throughout the analysis area, although human development in the remote portions of the area is minimal.

Western Ground Snake – For scope of analysis, see the second paragraph in Alternative cumulative effects.

Livestock Grazing and Trailing – Livestock grazing and large wildfire would not be expected to cause cumulative effects to this species. Livestock would not be allowed to graze for at least two growing seasons which would allow for sufficient cover to re-establish for this species.

Noxious Weed Treatment – **See**: Ferruginous Hawk.

Power line Maintenance – Maintenance actions would not cause measurable cumulative impacts due to their short duration and limited area impacted.

Pronghorn Antelope – For scope of analysis, see the second paragraph in Alternative cumulative effects.

Livestock Grazing and Trailing – Since pronghorn are primarily a forb-eating species with strong requirements for open cover; they are favorably influenced by herbaceous species' increases and shrub reduction after fire (Higgins et al. 1989). Livestock grazing and trailing after wildfire would slow the recovery of shrubs, which would maintain a more open landscape that pronghorn prefer. There would be no cumulative impacts from these actions to pronghorn antelope.

Noxious Weed Treatment – **See**: Ferruginous Hawk.

Power line Maintenance – Maintenance actions would not cause measurable cumulative impacts due to their short duration and limited area impacted.

3.3.3.2 Alternative B and Alternative C

Ferruginous Hawk, Western Ground Snake, and Pronghorn Antelope – Because there are no direct or indirect impacts from project activities to these species, no cumulative effects would occur.

Greater Sage-grouse, Brewer's Sparrow, Pygmy Rabbit – The environmental analysis of the action alternatives determined that effects to sage-grouse, Brewer's sparrow, and pygmy rabbit would be negligible. The reasons there would not be measurable effects to these species from either action alternative include the following:

- The minimal amount of Key and Priority habitat impacted relative to the amount available in the PA;
- Treatments are adjacent to roads;
- Actions include design features that protect habitat and important life history activities for these species.

Therefore, implementing Alternative B or C in combination with current and foreseeable projects would not cause measurable negative cumulative impacts to sage-grouse or other sagebrush obligate species beyond what any of the actions cause on their own. As identified in the environmental effects analysis, the proposed action would impact 0.5% of the Key/Priority habitat in the PA. In the analysis area, the sum of Idaho's Key habitat, Oregon's Core habitat, and Nevada's Essential and Important habitat is 4,157,459 acres. The percentage of Key/Priority habitat impacted in the PA compared to the amount of those four habitat classifications (basically the same as Priority habitat) in the cumulative effects analysis area for sage-grouse would be 0.02%.

3.4 Soils

3.4.1 Affected Environment

Soil information is derived from the Soil Survey of Elmore County Area, Idaho, Parts of Elmore, Owyhee, and Ada Counties, Idaho (NRCS, 1991) and Soil Survey of Owyhee County Area, Idaho (NRCS, 2003). Major landforms within the project area include dissected piedmonts and terraces in the northeastern section, and foothills, structural benches, and tablelands in the remainder of the project area. Common soils are Shoofly-Ornea-Abgese on alluvial plains and fan terraces, Typic-Torriorthents-Mazuma-Vanderhoff on dissected terraces, Willhill-Dougal on foothills and structural benches, Wickahoney-Monasterio-Yatahoney on foothills, tablelands and structural benches, Bruncan-Troughs-Snowmore on calderas, tablelands and structural benches, and Arbidge-Bedstead-Buncelvoir on calderas, tablelands, and foothills.

The northeast region of the project area is the lowest in elevation. Typical soils in this region formed from mixed alluvium and loess, soil depths range from moderately deep to very deep and are well drained to excessively drained. Surface soil textures range from loams and silt loams to sandy loams. Soils in the remaining regions of the project area generally formed in residuum and slope alluvium derived from welded rhyolitic tuff. Soil depths are generally shallow to moderately deep and well drained. Surface soil textures range from loam to silt loams with varying amounts of rock fragments.

The wind erodibility indexes for soils in the project area have low to moderate ratings. This index is closely linked to surface layer texture, size and durability of surface clods, percentage of rock fragments, organic matter and calcareous reaction (Soil Survey Staff, 2011). Biological soil crusts are common on soils throughout this region and provide additional resistance to erosion.

3.4.2 Environmental Consequences

3.4.2.1 Alternative A

Under this alternative the increased potential for large scale and more frequent wildfires could lead to exposed soil and increase in invasive annual plants. Annual plants would provide limited soil protection from wind and raindrop impacts. Annual plant roots are not as extensive as perennial plants and thus do not provide the same soil holding capacity and resistance to soil movement. Annual plant roots also do not provide the same level of organic matter and porosity as perennial plants, which allow deeper infiltration of moisture.

3.4.2.2 Alternative B

Mowing equipment could create localized and short-term disturbance to soil surfaces and biological crusts. The disturbance effects would be confined to the structural breakdown, from tires, of soil aggregates and biological soil crusts. Mowing would not remove vegetation; therefore, erosion would not be expected to increase. These effects are expected to be inconsequential and not long-term.

Drill seeding equipment would disturb soil approximately 2 to 4 inches deep creating more pronounced disturbance to the soil and biological soil crusts than mowing. Drill seeding would generally occur in areas previously disturbed during emergency fire rehabilitation treatments or where invasive annual grasses are dominant. Only a very small percentage of the proposed greenstripping would occur in native plant communities. The establishment of the herbaceous perennial plants in the greenstripped area could require subsequent seedings to ensure a functional fuel break. Multiple passes would create more disturbance than a single pass.

3.4.2.3 Alternative C

The effects described from drill seeding in Alternative B would occur throughout the proposed treatment area. Additional disturbance under this alternative would result from removing existing native plant communities, especially if removal is accomplished by plowing. Prescribed fire would have less impact to soil than plowing. Effects from prescribed fire would be confined to the release of nitrogen which favors annual plant growth. Altering the structural composition of the plant community from shrub/grass to grass could alter the ability of those areas to retain snowfall which increases infiltration; however on a landscape scale this effect would be very minimal.

3.4.3 Cumulative Impacts

The area directly affected by the proposed actions accounts for approximately 0.007 percent of the project area; therefore the spatial scale for cumulative impacts is confined to the project area. The temporal scale for cumulative impacts to soil is 10 years; which includes the time during the phased in implementation which is expected to be approximately 5 years. Of the actions identified for consideration of cumulative effects, livestock grazing and recreation have shown to have the most potential for impact.

Recreation impacts are largely from dispersed activities and with the phased in implementation of the project, no cumulative impacts would be expected. Soil impacts from livestock grazing would largely be dispersed, although concentrated impacts occur especially near gates, water troughs, mineral supplementation sites, and where trailing occurs. The impacts from livestock grazing, recreation, and fuel break construction and maintenance would not be expected to have significant cumulative impacts in the project area. More disturbances would occur, as a result of creating and maintaining fuel breaks, under Alternative C than mowing, creating, and maintaining fuel breaks under Alternative B.

3.5 Livestock Grazing Management

3.5.1 Affected Environment

Compared to surrounding BLM field offices, i.e., Jarbidge, Owyhee, and Four Rivers, Bruneau Field Office has the fewest number of wildfires and the least amount of acreage burned each year. Nevertheless, over the past 30 years, the area below 5,800 feet and north of Big Hill has seen a large amount of wildfire activity and, consequently, has a large cheatgrass component in the shrub understory or where shrubs are lacking; plant communities are dominated by cheatgrass and/or Sandberg bluegrass.

Past burned area seeding with crested wheatgrass has substantially increased the amount of available livestock forage and cheatgrass is generally suppressed. Non-seeded, burned areas often have a large cheatgrass component in the plant community, although the forage amount it provides fluctuates more with growing conditions. Cheatgrass, when actively growing, is palatable for livestock; however, when cured, it is less palatable although livestock graze cured cheatgrass in the fall and winter. Perennial grasses remain green and palatable later in the spring than does cured cheatgrass. So, it is better to maintain the perennial grass understory to sustain livestock grazing later in the growing season.

It is standard operating procedure to drill seed a combination of native and/or non-native perennial grasses on burned areas prone to cheatgrass establishment. In the short-term, seeded burned areas are protected from grazing for a minimum of two growing seasons, which can temporarily disrupt the permittees' livestock grazing operations. In the long-term, seeded areas generally provide more livestock forage than prior to the wildfire; therefore, there is increased forage availability. Only in the Center Allotment has there been a permanent increase in permitted AUMs, due to the increased forage availability. In all other allotments within the analysis area, where there has been wildfires and post-fire seeding of either native or non-native perennial grasses, there has been no permanent increase in AUMs.

Generally, permitted use is in the fall, winter, and spring in the analysis area east of State Highway 51, except for Blackstone Allotment. West of State Highway 51, permitted use includes all seasons, with summer use in China Creek, Northwest, and Owens allotments. Table 7 provides a summary of the allotments and permitted livestock grazing use in each.

Table 7. BLM allotments in the analysis area, BLM acreage, Permittee(s), and mandatory terms and conditions for each permit.

Allotment Number	BLM Acreage	Permittee(s)	Number and Kind of Livestock	Season of Use	AUMs
Blackstone 00941	72,397	Strickland YT Ranches, Inc.	198 Cattle	12/8 – 2/28	540
			198 Cattle	3/1 – 4/4	228
			416 Cattle	4/5 – 6/5	848
		Hall Family Trust, Thomas C. and Celia E.	56 Cattle	4/8 – 6/5	109
			56 Cattle	6/6 – 8/10	122
			46 Cattle	8/11 – 11/15	147
Center 00809	64,038	JR Simplot Company/Battle Creek	446 Cattle	11/1 – 3/25	2,126

Allotment Number	BLM Acreage	Permittee(s)	Number and Kind of Livestock	Season of Use	AUMs
		Les and Leona Hatch	269 Cattle	11/16 – 5/31	1,742
China Creek 00883	33,450	Les and Leona Hatch	193 Cattle	5/1 – 11/30	1,352
			21 Cattle	5/1 – 11/30	102
Crab Creek 00841	7,242	Tindall and Sons Ranches LLC	191 Cattle	3/15 – 4/20	232
East Canyon View 00869	4,283	JR Simplot Company/Battle Creek	218 Cattle	3/1 – 3/31	222
			218 Cattle	11/1 – 2/28	860
Louse Creek 00842	12,878	Tindall and Sons Ranches LLC	220 Cattle	3/1 – 4/20	369
			220 Cattle	1/1 – 2/28	427
Miller Table Seeding 00812	6,158	JR Simplot Company/Battle Creek	223 Cattle	11/16 – 2/24	740
Northwest 00808	193,060	David Lahtinen	203 Cattle	4/1 – 5/31	408
		Chester Sellman	113 Cattle	4/1 – 5/31	227
		Dickshooter Cattle Company	1429 Cattle	3/1 – 8/1	7,235
			22 Horse	3/1 – 8/1	111
			1451 Cattle	8/1 – 8/31	1,479
			301 Cattle	9/1 – 11/30	901
			1058 Cattle	12/1 – 2/28	3,131
		Craig Gillespie	48 Cattle	4/1 – 11/30	385
		John B. Urquidi	50 Cattle	4/1 – 5/31	100
Owens Allotment 01348	22,475	David Lahtinen	204 Cattle	6/1 – 7/15	302
			204 Cattle	7/16 – 9/30	516
		Chester Sellman	113 Cattle	6/1 – 7/15	167
			113 Cattle	7/16 – 9/30	286
		John B. Urquidi	66 Cattle	6/1 – 7/15	98
			66 Cattle	7/16 – 9/30	167
Table Butte 00812	30,976	JR Simplot Company/Battle Creek	223 Cattle	11/16 – 2/24	740
West Canyon View 00811	3,353	Dickshooter Cattle Company	203 Cattle	3/1 – 4/30	407
			201 Cattle	11/1 – 2/28	793

In addition to permitted use in the affected allotments, which includes cattle movements by permittees within the allotment, BLM also permits trailing by non-permittees to enter or exit

their own permit allotments. BLM has recently completed an EA and issued crossing permits to these individuals. The EA for trailing and the crossing permits stipulate that "livestock trailing on routes in or adjacent to burned areas that have been temporarily closed to grazing will be kept on the route (within 50 feet of the route) . . ." This also applies to livestock trailing on routes in or adjacent to vegetation treatment . . . "unless the specific trailing event would not conflict with treatment objectives".

A short segment of the proposed mowing treatments within the Northwest Allotment coincides with a route used by Dave Lahtinen and Chet Sellman in fall to exit their permitted use area in Battle Creek Allotment.

A longer segment of the proposed mowing treatments coincides with one of the alternate spring trailing routes for Joseph Black & Sons within the Northwest Allotment.

An additional potential trailing route along the CCC road that may be authorized upon application in the future coincides with several segments of the greenstrip maintenance treatments. If any trailing were authorized along this route, it would occur only during the dormant season, i.e., in fall.

3.5.2 Environmental Consequences

In all cases, the Field Manager has the discretion to close or modify portions of allotments or to reroute any coincident trailing events to allow establishment of recently seeded species. Options are generally available to reduce or minimize disruption to ongoing, authorized livestock grazing, within the flexibility offered by the existing grazing and crossing permits. Many do not require alteration of mandatory terms and conditions, but instead require improved control of distribution patterns or temporarily changing the timing of use. Temporary closures can be implemented through documented agreement or through Full Force and Effect grazing decisions under 43CFR.

In Alternatives B and C, mowing along roads in shrub communities could promote drifting snow, and may reduce winter access for livestock management purposes.

3.5.2.1 Alternative A

This alternative would not result in any change in the mandatory terms and conditions of existing grazing permits, i.e., allotment(s) to be used, kind and number of livestock, period(s) of use, and use amount, as shown in Table 7. Other listed terms and conditions for the respective permittees would also not change, except for documentation of necessary temporary closures. Crossing permits already require that trailing animals be kept within 50 feet of the centerline when crossing or skirting newly burned areas. The short-term need to protect burned native vegetation or burned area seeding(s) by decision or agreement is typically documented in a term and condition imposed on the RAS (grazing billing system) applications and licenses issued during the closure. Policy requires a minimum closure of two growing seasons.

In the short-term, burned areas protected from grazing can disrupt permittees livestock operations. Temporary disruption of permitted grazing would occur more frequently under this alternative than under Alternatives B and C due to expected increases in burned acreage, more frequent fires, and progressively larger areas affected by recurring burns, as previously documented in the Big Hill area since 1972 and, especially, in the neighboring JFO. Impacts to

permitted trailing events would be minimal except for the possibility of changing cross-country segments to pass along roads.

In the long-term, burned areas generally provide more livestock forage than prior to wildfire, but also more fine fuels. Fire spread rates would be greater in areas not reseeded or where reseedings fail to establish. This alternative would have the highest burned acreage over the long-term, which also affects forage availability.

As part of the previous Bruneau Resource Management Plan (RMP) scoping process, permittees requested BLM use prescribed fire to control sagebrush and improve crested wheatgrass seedings' productivity. Since the RMP is still in the draft planning stages, no decisions have been made. However, wildfires would act the same way to control sagebrush and would, in the long-term, potentially improve their productivity.

This alternative would lead to potentially more available livestock forage from seeding of native and non-native grasses on burned areas and maintaining productivity of older ones. However, it is BLM policy to prepare an Environmental Assessment (EA) that considers other resource values to determine whether or not to permanently increase permitted AUMs. Additional forage, which is not allocated for livestock use under a separate decision-making process, does not affect mandatory terms and conditions of existing permits, but may increase fuel loading and likelihood of recurring burns expanding into shrub-dominated communities.

3.5.2.2 Alternative B

The Proposed Action would also not result in any change in the mandatory terms and conditions of existing grazing permits. Other terms and conditions would also not change except for documentation of necessary short-term closures. Crossing permits already require that trailing animals be kept within 50 feet of the route when crossing or skirting newly burned areas. This would occur with the same frequency as in Alternative C because there would be less acreage burned by wildfires as compared to Alternative A. Acreage potentially burned, and, therefore, temporarily closed would be less than Alternative A.

Mowing would enhance fire suppression, decrease wildfire size, and, consequently, reduce the need to protect burned areas from livestock grazing. That would be less disruptive to the permittees' livestock grazing in the long-term. Although not an objective of the project, when compared to Alternative A, there would more available livestock forage, and less disruption from wildfires and potential temporary protective closures associated with fire rehabilitation efforts. Permitted AUMs would not change. Additionally, livestock use of the treated areas would make them more effective fuel breaks. The requirement to keep trailing livestock within 50 feet of the of routes and for active trailing would minimize any contribution from authorized trailing.

3.5.2.3 Alternative C

No change in mandatory terms and conditions of the grazing permits would result. However, protection of greenstrip seeding(s) through temporary closures during implementation, as other terms and conditions, would affect a larger area than under Alternatives A or B. Several routes authorized by currently issued crossing permits coincide with locations of new greenstrip seedings, the same ones proposed for mowing in Alternative B. However, the same requirement

to keep trailing livestock within 50 feet of the centerline of the route and for active trailing would minimize any contribution from authorized trailing

Conversely, wildfire burned acreage and the associated need to protect burned areas, while similar to Alternative B, would be less than in Alternative A, and outweigh the greater impacts of localized, seeding temporary closures. This would be less disruptive to the permittees' livestock grazing, in the long–term, although not during implementation. Compared to Alternative A, there would more available livestock forage and the same amount as Alternative B, although permitted AUMs may not change. Additionally, livestock use of the treated areas would make them more effective fuel breaks.

3.5.3 Cumulative Impacts

The project area for cumulative impacts includes a larger area than the area bounded by the grazing allotments described above for direct and indirect impacts of livestock grazing. It particularly includes the neighboring Jarbidge Field Office, the Bruneau Field Office (which also includes small areas in northeastern Nevada) and generally, other Field Offices in the Vale and Boise Districts. This is because other field offices have had far larger areas burned and seeded that have affected forage availability than has the Bruneau Field Office. Their actions are relevant to the expected cumulative impacts of this proposal. The project area for cumulative impacts is of sufficient scope for analysis of cumulative effects of past, present, and foreseeable future actions to changes in the amount of livestock grazing resulting from this action. Thirty years is an appropriate temporal scale.

3.5.3.1 Alternative A

Post-fire seeding of native and non-native grasses in the JFO, in the Twin Falls District, over the past 30 years resulted in a limited increase in permitted AUMs. In the BFO, an increase in permitted AUMs for Center Allotment has been granted on post-fire seedings; however, no other allotments have seen increases. In the reasonably foreseeable future, no increases in permitted AUMs are likely to occur in the JFO or in the Vale or Boise districts, due to resource conflicts.

No permanent temporal or spatial change in livestock grazing management, as a result of this alternative, would happen. In the past, present and reasonably foreseeable future, cattle grazing would be influenced by, but not limited to, livestock market, topography, water availability, salt, and season of use. However, there would be less stability in livestock operations because of more frequent temporary closures on larger burned areas.

3.5.3.2 Alternatives B and C

On adjacent BLM districts, such as Vale and Twin Falls, there has not been an increase in permitted AUMs, resulting from mowing alone or greenstrips alone, because of the potential for resource conflicts and workload considerations. Mowing areas would be maintained indefinitely. Considering the temporal range and spatial scale of planned mowing treatments, there would be no change in livestock grazing management in southeastern Oregon, southern Idaho and northeastern Nevada from the slight increase in available forage and slight change in cattle distribution resulting from mowing or greenstripping treatments within this analysis area. These projects would not hinder authorized trailing events.

3.6 Recreation

3.6.1 Affected Environment

Special Recreation Management Areas (SRMAs) are land use plan decisions and designations which intensify management of areas where outdoor recreation is a high priority. It helps direct recreation program priorities toward areas with high resource values, elevated public concern, or significant amounts of recreational activity. The project is not within an SRMA. No Special Recreation Permit applications (commercial use of public lands for guided and/or outfitted activities) have been received in the project area.

Defining recreational opportunities helps recreation managers create and maintain the appropriate experiences that suits various land and visitor types. The recreation opportunity spectrum (ROS) characterizes recreation in terms of setting, activity, and experience. It contains six classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and urban. The ROS classes, in the project area, include roaded natural and semi-primitive motorized. These broad scale settings provide opportunities for non-developed, resource dependent, and dispersed recreation experiences. Common recreational activities include, but are not limited to, big and small game hunting, off-highway vehicle (OHV) use, camping, hiking, nature viewing, and photography. Area visitation occurs primarily in the fall, coinciding with pleasant weather and various hunting seasons.

3.6.2 Environmental Consequences

3.6.2.1 Alternative A

The absence of fuel breaks and mowing under the No Action alternative would not result in any direct impacts to visitor use and experience. However, in the long term there would be an increased potential for more intense and severe wildfires that could affect the recreation experience. Large burned areas would reduce the amount of recreation opportunities in the area and would cause a short to long-term reduction in scenic integrity and visitor enjoyment.

3.6.2.2 Alternative B

Under the Proposed Action, direct impacts are expected to be minimal. Indirect impacts to the quality of the visitor recreation opportunities may be slightly degraded in the short-term (2-5 years following implementation) from impacts related to scenic integrity expected from manipulation of the vegetation communities (see Visual Resource Management) adjacent to vehicle routes used by the public. Short duration direct impacts (slightly diminished recreational experiences) are possible during project implementation, where area visitors encounter those activities' sights and sounds, i.e., a visitor expecting a primitive, wildlife viewing experience, and it being diminished due to sagebrush mowing equipment.

3.6.2.3 Alternative C

Recreation impacts from green-stripping would be similar to those described for Alternative B.

3.6.3 Cumulative Impacts

The project area is of sufficient scope for analysis of cumulative effects of past, present, and foreseeable future actions to the quality of recreation opportunities available. Five years is an appropriate temporal scale for recreation as many factors including population growth in nearby urban centers of the Ada and Canyon Counties (Boise, Nampa, Meridian), fuel prices, the regional economy, media coverage, and recreation trends all can influence recreation demand. These dynamics which influence visitor use can be very speculative to predict beyond five years, especially during the current economic recession.

The primary past, present and foreseeable future land use in the project area is livestock grazing and related activities such as herding and trailing as it occurs throughout the project area. The foreseeable extent of this land use is expected to continue at current levels.

3.6.3.1 Alternative A

The potential indirect impacts to recreation opportunities if future wildfire events were larger in size, compared to Alternatives B and C, in combination with past, current, and foreseeable future land uses would not be measurable. It would be difficult to quantify these impacts to the quality of a visitors experience as much of project area, especially in the western portion, has not burned in the recent past and may be unlikely to burn in the foreseeable future (next 5 years).

3.6.3.2 Alternative B

The short duration direct effects of visitors contact with project implementation and minor indirect impacts on scenic values from mowing of sagebrush in combination with past, present, and foreseeable future effects would be minor. The combined effects would not significantly diminish the quality of recreational opportunities.

3.6.3.3 Alternative C

The cumulative effects would be similar to Alternative B.

3.7 Visual Resource Management

3.7.1 Affected Environment

Public lands have a variety of visual resource values. The BLM is responsible for ensuring that the scenic values of these lands are considered before allowing uses that may have adverse visual effects. These different values warrant different levels of management; this is accomplished through the Visual Resource Management (VRM) system. Visual resources are assigned management classes in a land use plan decision. Classes I and II are the most valued, Class III represents a moderate value, and Class IV is of the least value.

The VRM classes in the proposed project area consist primarily of III (72.5 miles of treatments or 50%) and IV (55 miles or 38%). About 18.5 miles (12%) are within Class II areas, primarily along State Highway 51 from Wickahoney Road to Blackstone Road (12 miles) as a ½-mile wide corridor on either side of the highway.

While VRM classes determine the allowable level of visual impacts which may be authorized, inventories represent the most current resource conditions. In 2010, the BFO interdisciplinary team (IDT) conducted a visual resource inventory (VRI) resulting in broad scale classes, according to BLM Manual 8410-H. The project area is entirely within Visual Resource Inventory Class III.

3.7.2 Environmental Consequences

The visual contrast rating system (BLM Manual 8431) provides a systematic means to evaluate proposed projects and determine whether they conform to VRM class objectives. It also provides a means to identify mitigation measures that can be taken to minimize adverse visual effects.

3.7.2.1 Alternative A

There would be no direct effect on the project area's visual resources under the No Action alternative. Wildfire has the ability to severely alter the landscape character through vegetation loss which, often in sagebrush steppe, does not return to pre-burn conditions. While wildfire will continue to occur, wildfire size would likely be larger than compared to the other alternatives. If this were to occur, the scenic values (patterns and texture) associated with the areas' vegetative diversity would be diminished.

3.7.2.2 Alternative B

Implementation of the Proposed Action alternative would comply with the visual quality objectives for the project area. The Class III VRM would be maintained. The direct effects of wildfire fuel breaks, created by sagebrush mowing, proposed green strips, and maintenance of existing crested wheatgrass adjacent to motorized routes, would not change the characteristic landscape or dominate the casual observer' view . Vegetation mowing, adjacent to primitive or two-track vehicle routes, would be more visually apparent (noticeable) but less visually sensitive (fewer visitors or viewers) than the mowing of vegetation adjacent to paved roads (State Highway 51) and maintained gravel roads (Wickahoney, CCC, and Blackstone).

A weak degree of visual contrast to the characteristic landscape, within the 12 miles (8%) of VRM Class II along State Highway 51, would be expected, created by mowing vegetation strips, up to 50 feet, paralleling this paved road. Although this area is managed as VRM Class II, it is within the highway and transmission line right-of-way. The proposed project area has been mowed and seeded to crested wheatgrass by the Idaho Department of Transportation.

Weak to moderate degrees of contrast would be expected along the 56 miles (38%) of improved gravel roads within the project area, mostly VRM class III. A weak to moderate degree of contrast is expected from the proposed treatments adjacent to the 80 miles (55%) of two-track vehicle routes, primarily managed as VRM class IV. These would be in conformance with the VRM classes II, III, and IV objectives within the project area.

Project areas identified for green strip development would maintain the characteristic landscape. The visual contrast created in areas proposed for greenstrip maintenance would be minimal (none-weak), as these areas are already located within established seedings. The impacts would be the same over the short- and long–term, since these treatments would be maintained, as needed, for fuel breaks.

3.7.2.3 Alternative C

This alternative would comply with VRM class objectives and retain the visual inventory class III, if implemented. The direct effects to visual resources would be similar to Alternative B. The degree of contrast would be slightly greater, as compared to Alternative B areas identified for mowing (up to 100 feet wide), as developed green strips are up to 300 feet.

3.7.3 Cumulative Impacts

The geographic scope or cumulative impact analysis area (CIAA) includes BLM managed lands within the Field Office boundary as sufficient for analysis because the vegetative fuel treatments are a small percentage of Field Office but in combination with other past, present, and foreseeable future actions within the project area could have impacts to scenic values. Temporal scope for this analysis is five years as Alternatives B and C's impacts to visual resources would be negligible to the casual observer as vegetation is reestablished. It is recognized that the two alternatives propose to re-treat vegetation, as needed, for wildfire fuel breaks.

Past actions and developments are few within the CIAA. Past or existing projects, which would be noticeable to visitors, include the 138 kV transmission line adjacent to State Highway 51 built in 2008; El Paso Gas pipeline, a buried natural gas pipeline right-of-way bisecting the area in a southeast-northwest direction, built in 1956; and Ant Hill water storage tank, located on private property, but noticeable to visitors driving the Owyhee Uplands Backcountry Byway. An existing, beneficial impact was the designation of about 270,000 acres of wilderness in 2009, within the Field Office, to be permanently managed as VRM Class I.

Present actions in the northwest area include several thousand acres of scattered vegetation treatments which were recently implemented (Western juniper wildfire fuels reduction/wildlife habitat improvement project). The public can collect firewood, by permit, in the juniper vegetation treatment area. As downed trees are removed, the visual impact, within 2-3 years, will be negligible.

While livestock grazing is the major land use in the Field Office, there are no reasonably foreseeable projects planned for grazing or other land use activities, such as energy development facilities or recreational site construction, which may adversely impact visual resources. The direct effects of a recreational visitor experiencing aspects of project implementation, including machinery operation, and the indirect impacts, of weak to moderate degrees of visual contrast, conform to the area's VRM classes for either Alternative B or C. Because of these factors, cumulative effects that would occur would be minimal and do not contribute significantly to the degree of intensity of the direct impacts.

3.8 Cultural Resources

3.8.1 Affected Environment

The proposed project covers a wide geographic area in the BFO in southwestern Idaho. The majority of the project area is physically characterized as a "Dissected High Lava Plateau," bounded by the Bruneau River to the east and Battle Creek to the west. This area is at the boundary of the Great Basin and Columbia Plateau cultural groups and was occupied by the Northern Shoshone, Northern Paiute and Bannock peoples (Palmgren, 1999). Although populations were mainly centered along the Snake River to the north, the Bruneau plateau lands

provided a variety of plant and animal subsistence resources, utilized for over 10,000 years. Site types include temporary camps, rockshelters, petroglyphs, and rock alignments and complexes that may be associated with hunting practices. Currently no Traditional Cultural Properties or Native American Religious concerns have been identified by Tribal members through the scoping and consultation process.

Research identified 28 previously recorded Native American sites along the proposed treatment roads. Ten had been determined potentially eligible for listing on the National Register of Historic Places (NRHP), due to their unique qualities and potential to add knowledge of Native American use of the area. Sixteen require further research to determine their listing status; two were determined ineligible due to lack of information potential.

Historically, Euro-Americans first entered southwestern Idaho in the early 1820s for fur trapping and exploration expeditions. In 1845, people began traveling west along the Oregon Trail through southwest Idaho, north of the project area. The discovery of gold in Idaho in the 1860s brought the area's first true settlers. In support of the mines, scattered ranches and farms were soon established. Wagon roads and trails were developed, linking these ranches and the small developing communities. As communities grew in importance and size, additional roads were developed, creating a network of travel corridors across the project area. Some of those roads are still in use. Ranching has continued as the main economic pursuit. Various site types can be found, including historic roads, residential sites, short term camps along old roads, simple trash scatters, and historic ranching features with water developments.

Research identified 13 previously recorded historic sites in the proposed project area. Of these, four had been determined potentially eligible for NRHP listing, three were left unevaluated pending further research, and the remaining six were determined ineligible, due to their lack of information potential.

New cultural resource surveys, covering 3,286 acres, were conducted for this project, and resulted in ten new sites recorded: seven historic, one Native-American, and two multicomponent (both historic and Native-American elements). Seven were determined ineligible for NRHP listing and three were left unevaluated, pending further research. In addition to the new sites, six previously recorded sites were revisited. One was reevaluated as ineligible, four were left unevaluated pending further research and one eligible site was updated. Through consultation with the Idaho State Historic Preservation Office, not all mow roads were surveyed since it was determined that mowing will have no adverse effect to historic properties. No Native American Traditional Cultural Properties were identified during these new surveys.

During August 2011, the Big Hill Fire burned across much of the area. Soil stabilization efforts, i.e., drill seeding, was proposed. In response, additional roads were proposed for development as greenstrips. Prior to drill seeding, an archeological contractor conducted cultural resource surveys that encompassed 3.96 miles of new greenstrip roads. During those surveys, one multi-component site was recorded within 150 feet of a greenstrip road; site eligibility is pending.

3.8.2 Environmental Consequences

3.8.2.1 Alternative A

There will be no effects to any historic property because no ground disturbing activities will occur.

3.8.2.2 Alternative B

Under this alternative, eligible sites or unevaluated sites along the greenstrip development and greenstrip maintenance roads will be flagged and avoided by ground disturbing activities. Pending evaluation, all unevaluated sites are treated as eligible until their eligibility is determined. Drill seeding has the potential to impact the site's spatial and vertical integrity by digging up artifacts and features and dispersing them. In addition, significant artifacts may be broken or uncovered exposing them to potential unauthorized collection. If a site is within a treatment area and contains a significant quantity of cheatgrass, then a backpack sprayer will be used to apply herbicides. Two of the unevaluated sites are historic roads; one is the Blackstone to Grasmere Road. Both roads remain unevaluated for NRHP listing, pending further research. No adverse effect is expected to the historic roads since all ground disturbing activities will take place outside the road prism. A few recorded historic road alignments outside the prism of the existing drivable road may be drill seeded however, drill seeding will not obliterate the road since these sections are typically very rocky reducing the drill's impact and penetration into the soil.

Under this alternative livestock use in the area may need to be restricted to allow seeded vegetation to become established. This may be accomplished through construction of temporary fences or moving salt and watering locations in a disturbed site at least ½ mile away from greenstrips. These areas have not been identified for this EA, but will be surveyed for cultural resources when identified. Any eligible or unevaluated cultural resources found will be avoided by these proposed activities.

The third treatment type is mowing 100-foot wide strips along 92 miles of road using a rubber-wheeled tractor with a mower attachment. The use of rubber tired equipment and mowing vegetation to no less than 6 inches reduces the potential for ground disturbing activities; therefore, mowing is not expected to have an adverse effect to any historic property. Few sites with features or artifacts above 6 inches are in the project area. An occasional tin can or other artifact may be crushed by the mowing (tires) but this will not affect the site's eligibility.

3.8.2.3 Alternative C

Under this alternative, 300-foot wide greenstrips will be newly developed along 103 miles of road and existing greenstrips maintained along 42 miles. Establishment of greenstrips will include drill-seeding with a rangeland drill, application of herbicides to reduce invasive annuals, and, possibly, mowing. Temporary fencing and relocation of salt blocks and watering locations may also occur to allow establishment of the newly seeded areas.

Cultural resource surveys have been completed along the 42 miles of existing greenstrip roads; however, only a few of the 103 miles of new roads have been surveyed. Based on past surveys,

the likelihood that sites would be found is low to moderate, with some of the roads themselves being historic. Prior to any ground disturbing activities along these roads, cultural resource surveys will be conducted, as required under Section 106 of the National Historic Preservation Act. Any eligible or unevaluated sites will be avoided by ground disturbing activities.

3.8.3 Cumulative Impacts

The scope of analysis for cumulative impacts to cultural resources is the project area since cultural sites can be directly impacted by actual project activities and potentially indirectly impacted as a result of those activities. The temporal range for cumulative impacts would be the life of this project. Five actions that happened in the past, and are expected to occur in the immediate future have been identified. Of these, livestock grazing and trailing, and recreation are the two which would potentially impact cultural resources, and are discussed under each alternative. Military training, which predominately takes place in the airspace above the project area, is not a ground disturbing activity and has no potential to adversely impact cultural resources. The impacts of noxious weed treatments on cultural resources were previously analyzed under Environmental Assessment #ID-100-2005-EA-265. It was determined that adverse impacts would be minimal as treatment areas are small and scattered. Power line construction and maintenance along State Highway 51 will not cumulatively impact sites, since the power line corridor was surveyed for cultural resources prior to installation. Any cultural resource concerns were addressed at that time.

Alternative A – Cultural resource sites would continue to experience ground disturbing impacts from livestock congregating or trailing through sites, and recreationists if they camp where sites are located. Livestock can adversely impact sites directly through trampling of soil deposits and artifact breakage and indirectly through reducing excess vegetation causing soil erosion. Recreationists can impact sites by fire pit excavation, collection of artifacts, and denuding a site of vegetation, thus enhancing soil erosion and causing a horizontal dispersion of artifacts.

Alternative B - The combined impacts to cultural resources in the treatment areas from the proposed action, livestock grazing and trailing, and recreation may slightly increase under this alternative. If an increase in livestock use occurs, due to forage increases from herbaceous plants where fuels treatments were done, then additional impacts may occur if livestock congregate on an eligible cultural resource site. In the Bruneau Field Office's 2012 Trailing EA defined preferred alternative one national register eligible cultural resource site that was in jeopardy of being adversely impacted by trailing was identified along a designated route (Environmental Assessment DOI-BLM-ID-B010-2012-0003-EA). This site is not within a route identified for this Fuel Breaks project therefore there will be no cumulative impacts to the site from the proposed projects. Any livestock overnighting areas identified along trailing routes through the Fuel Breaks project area will be surveyed for cultural resources and if national register eligible sites are identified their impacts will be mitigated as required under Section 106 of the Historic Preservation Act, thus there will be no cumulative impacts to those sites. Given the relatively small percentage of sites along treatment roads, few known sites would be impacted. However, since many of the roads proposed for mowing have not been surveyed, it is difficult to determine if or how many sites may be at risk from increased livestock use. Based on existing data, the number of NRHP-eligible sites should be low.

An increase in recreational use is not expected from the proposed project. However, if people camp or recreate on or near a recently mowed cultural resource site, then artifacts may be more visible, and there may be a higher tendency towards unauthorized collection. No known NRHP-eligible sites are within or near dispersed camping areas along designated mow roads; therefore, an increase in impacts would be negligible.

Alternative C – The combined impacts to cultural resources in the treatment areas from the proposed action, livestock grazing, and recreation would be similar to Alternative B.

4.0. Consultation and Coordination

4.1 List of Preparers

List of Preparers	Title	Responsibility
Michael McGee	Wildlife Biologist, BLM	Project Lead, Wildlife, Special Status Animals
Sarah Heide	Fire Use Specialist, BLM	Fuels, Fire Behavior, Air Quality
Kathi Kershaw	Ecologist, BLM	Vegetation, Special Status Plants, Noxious Weeds, Soils
Karen Kumiega	Archaeologist, BLM	Cultural Resources
Dianna Sampson	GIS Specialist, BLM	GIS Analysis and Maps
Dave Draheim	Recreation, BLM	Recreation, Visual Resource Management
Jon Haupt	Range Specialist, BLM	Rangeland Management
Mike Boltz	Range Specialist, BLM	Rangeland Management
Seth Flanigan	NEPA Specialist, BLM	NEPA Compliance

4.2 List of Agencies, Organizations, and Individuals Consulted

- Shoshone-Paiute Tribes
- Idaho Conservation League
- Idaho Department of Fish and Game
- Idaho Army National Guard
- Owyhee Cattlemen's Association
- U.S. Fish and Wildlife Service
- Western Watersheds Project

4.3 Public Participation

External scoping was conducted in November 5, 2008, through letters and maps sent to adjacent landowners and interested organizations, tribes, and individuals. The project appeared in the online Bruneau Field Office Schedule of Proposed Actions in December 2009 and January 2010. A copy of this EA is available upon request from:

BUREAU OF LAND MANAGEMENT
Boise District, Bruneau Field Office
3948 Development Avenue
Boise, ID 83705-5389.

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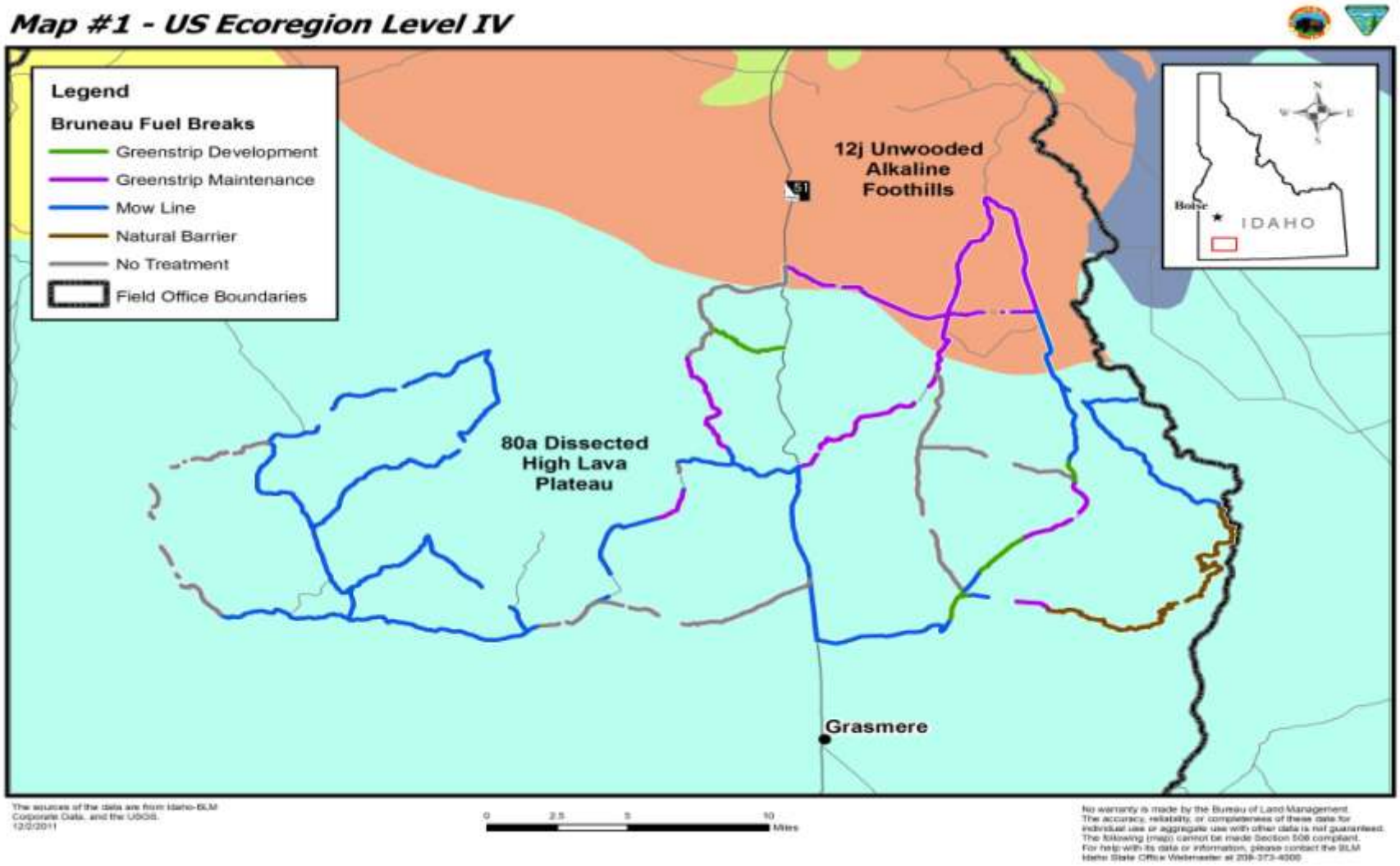
6.0. Maps


Map #1 - US Ecoregion Level IV
Legend
Bruneau Fuel Breaks
Greenstrip Development
Greenstrip Maintenance
Mow Line
Natural Barrier
No Treatment
Field Office Boundaries
12j Unwooded Alkaline Foothills
80a Dissected High Lava Plateau
Grasmere
Boise
IDAHO
The sources of the data are from Idaho-BLM Corporate Data, and the USGS.
12/2/2011
0
2.5
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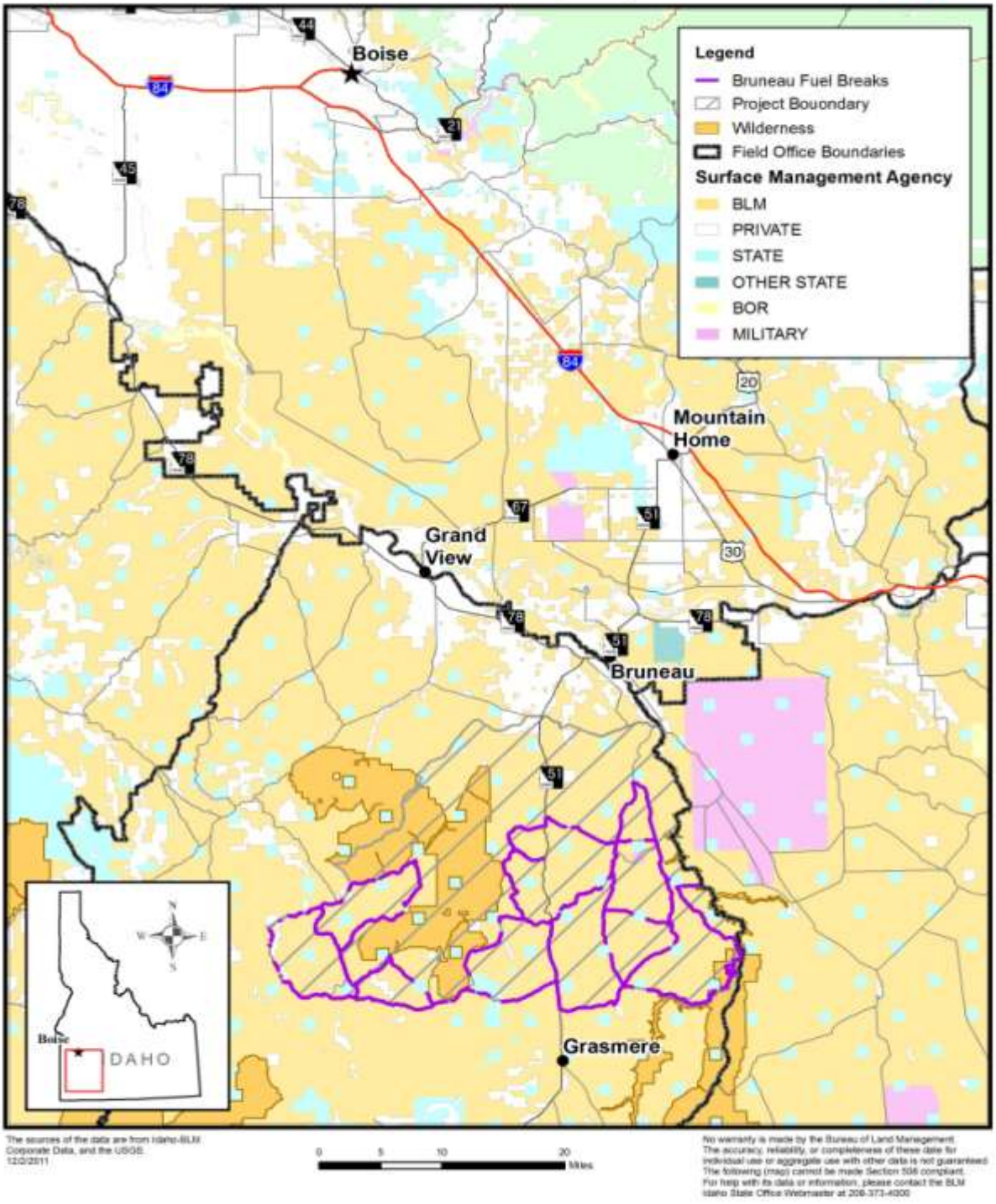
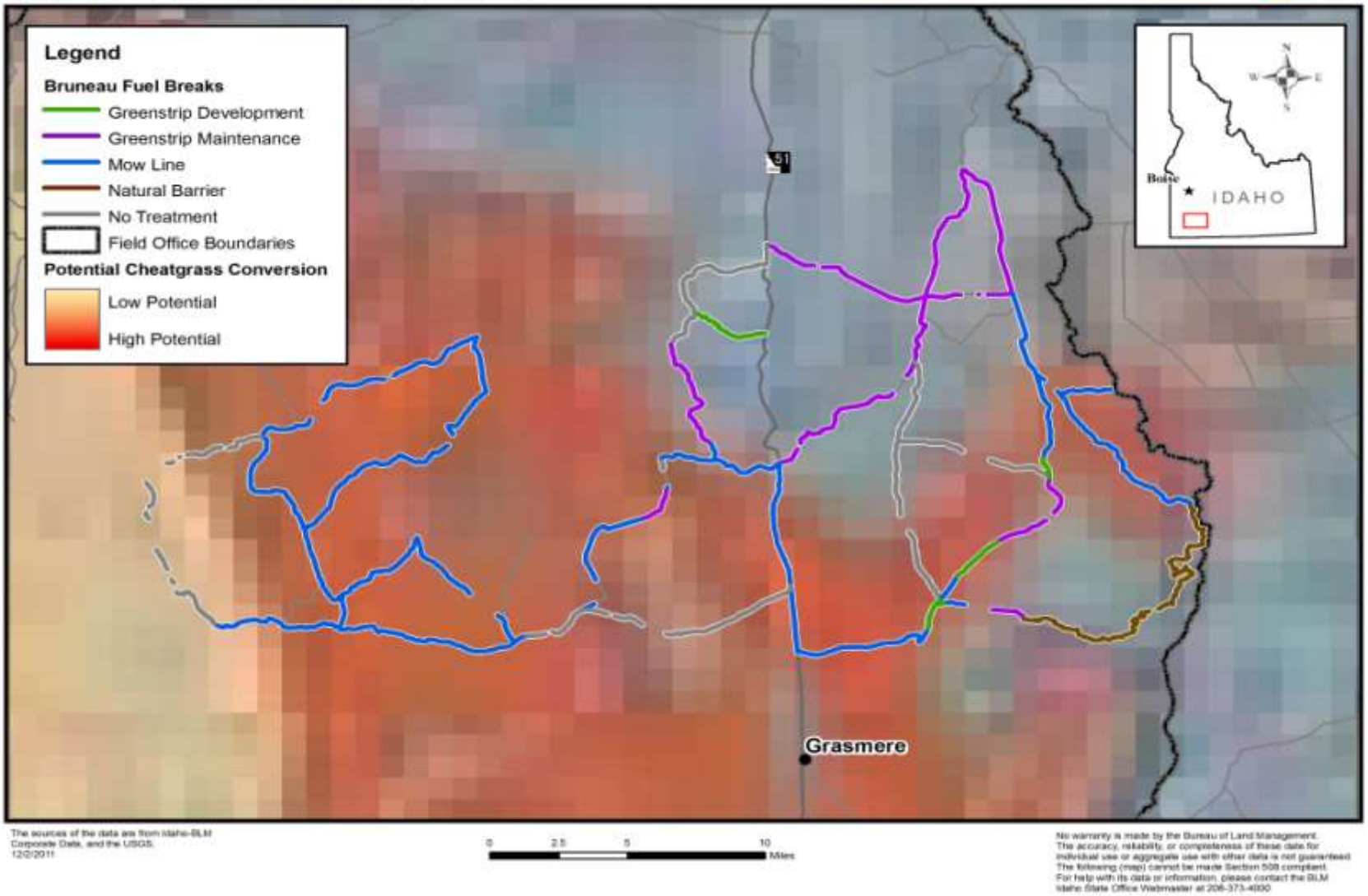
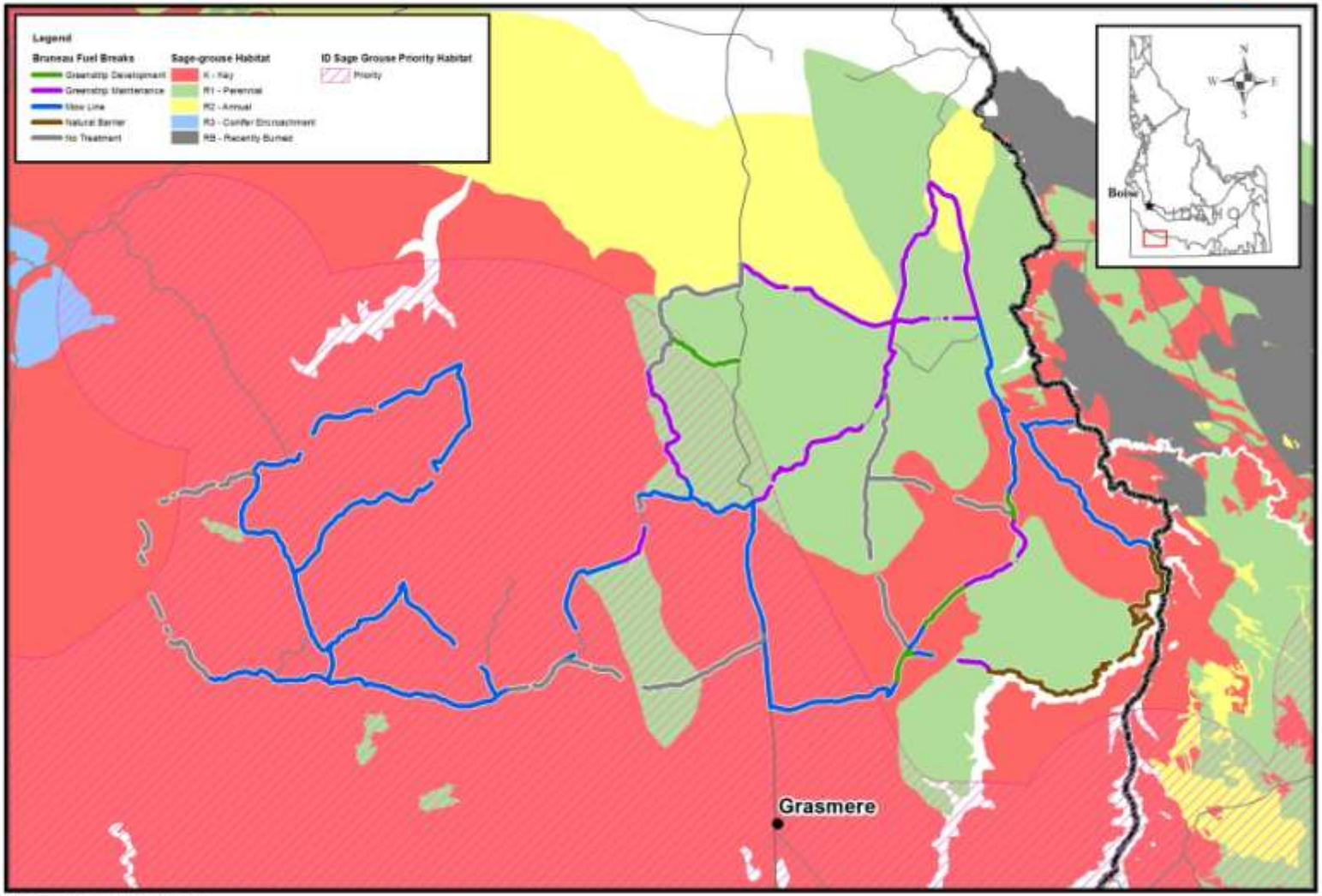
Map #2 - Bruneau Fuels Break Vicinity Map



Map #3 - Potential for Large Fires



Map #4 - Sage-grouse Habitat & Proposed Action (Alt B)



The sources of the data are from Idaho-BLM Corporate Data, and the USGS
12/2/2011

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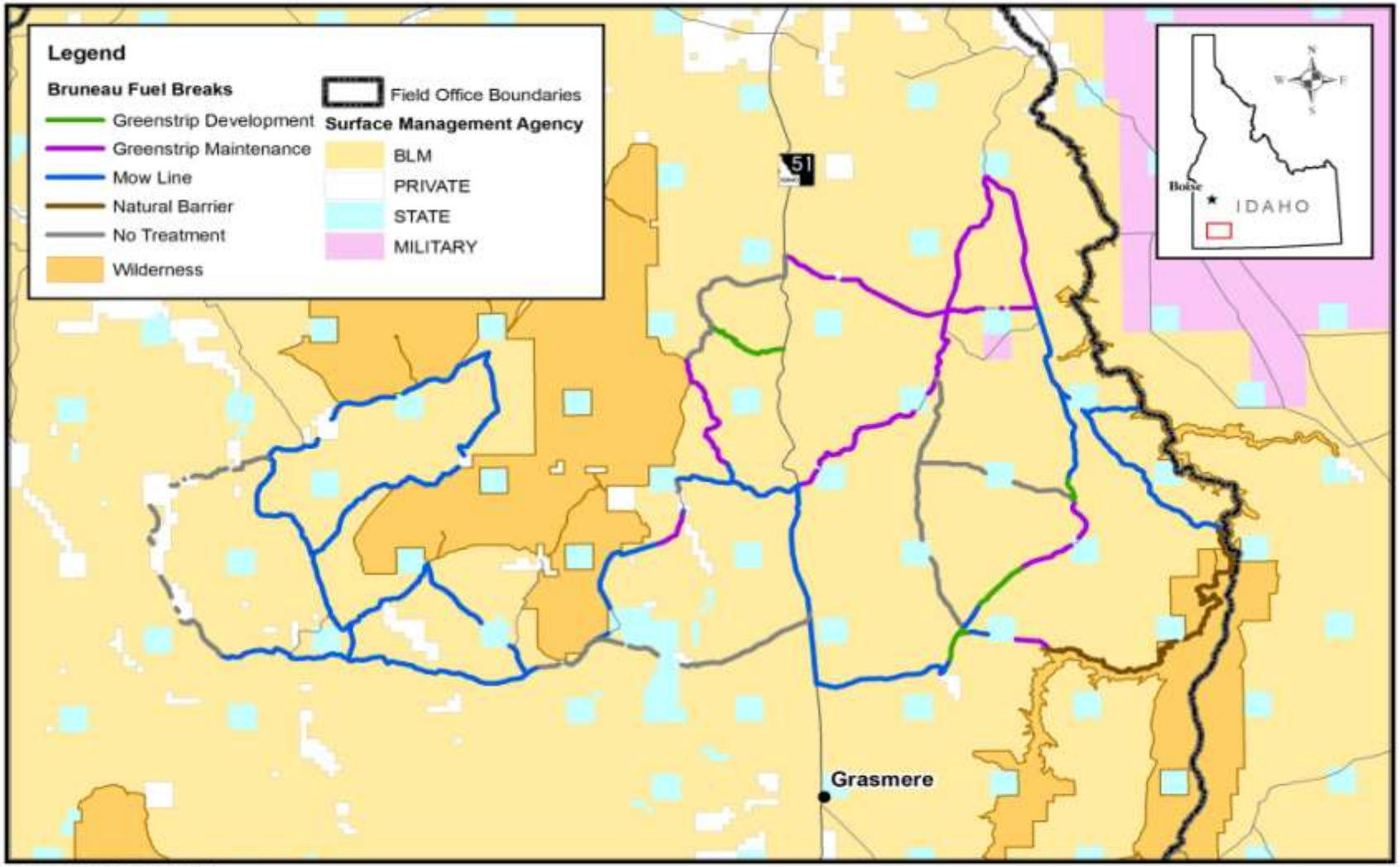
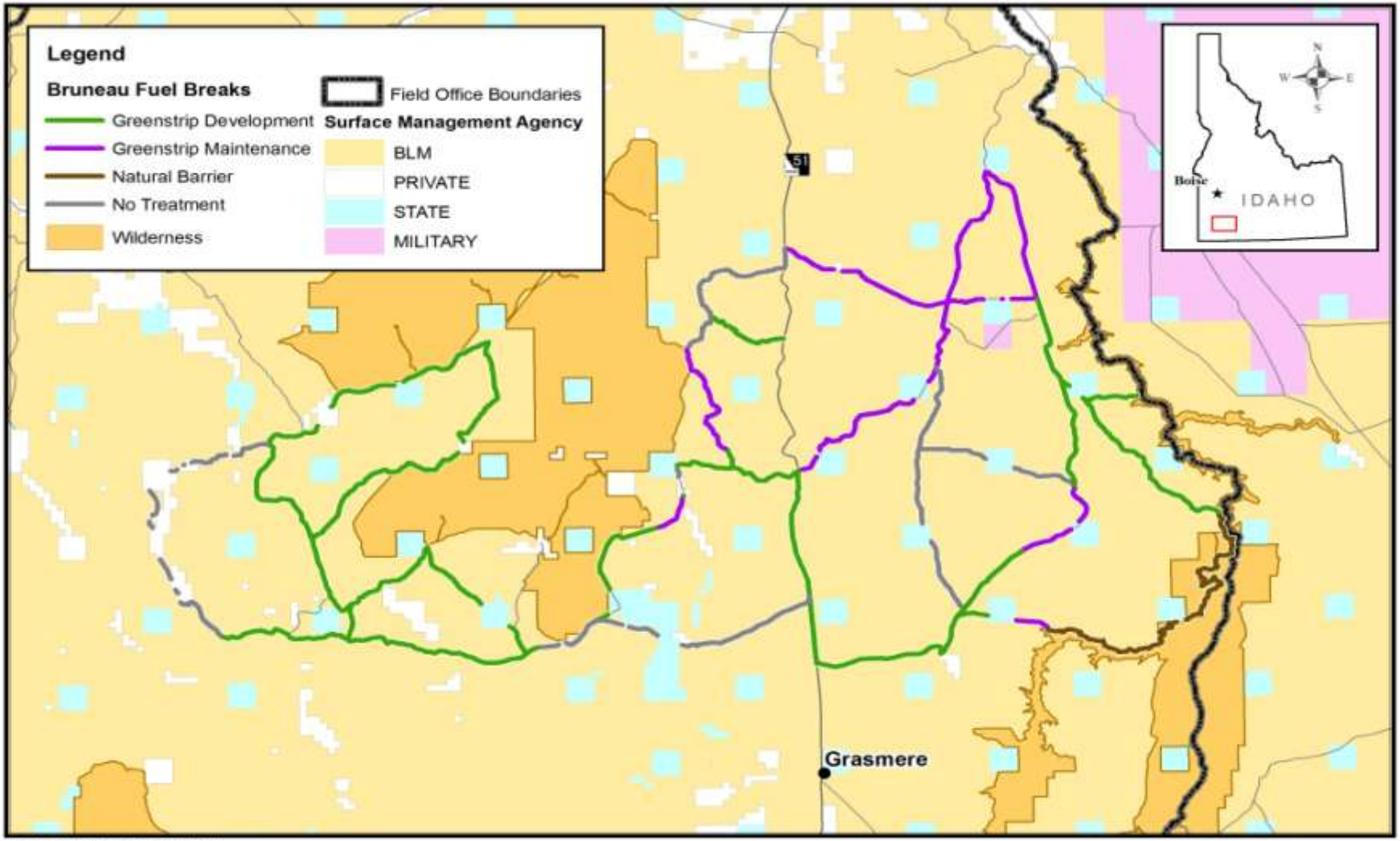
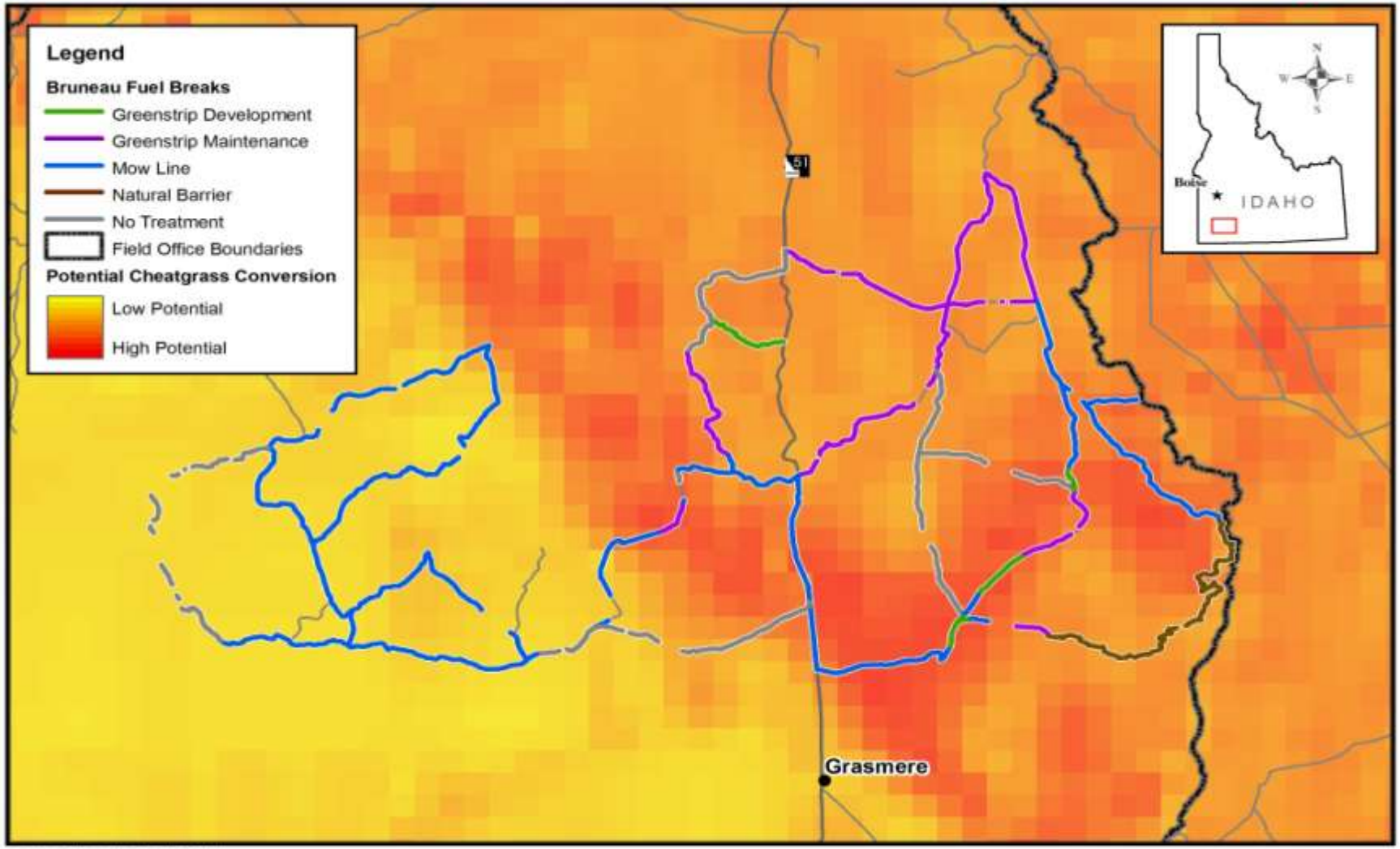
Map #5 - Bruneau Fuel Breaks (Alt B)

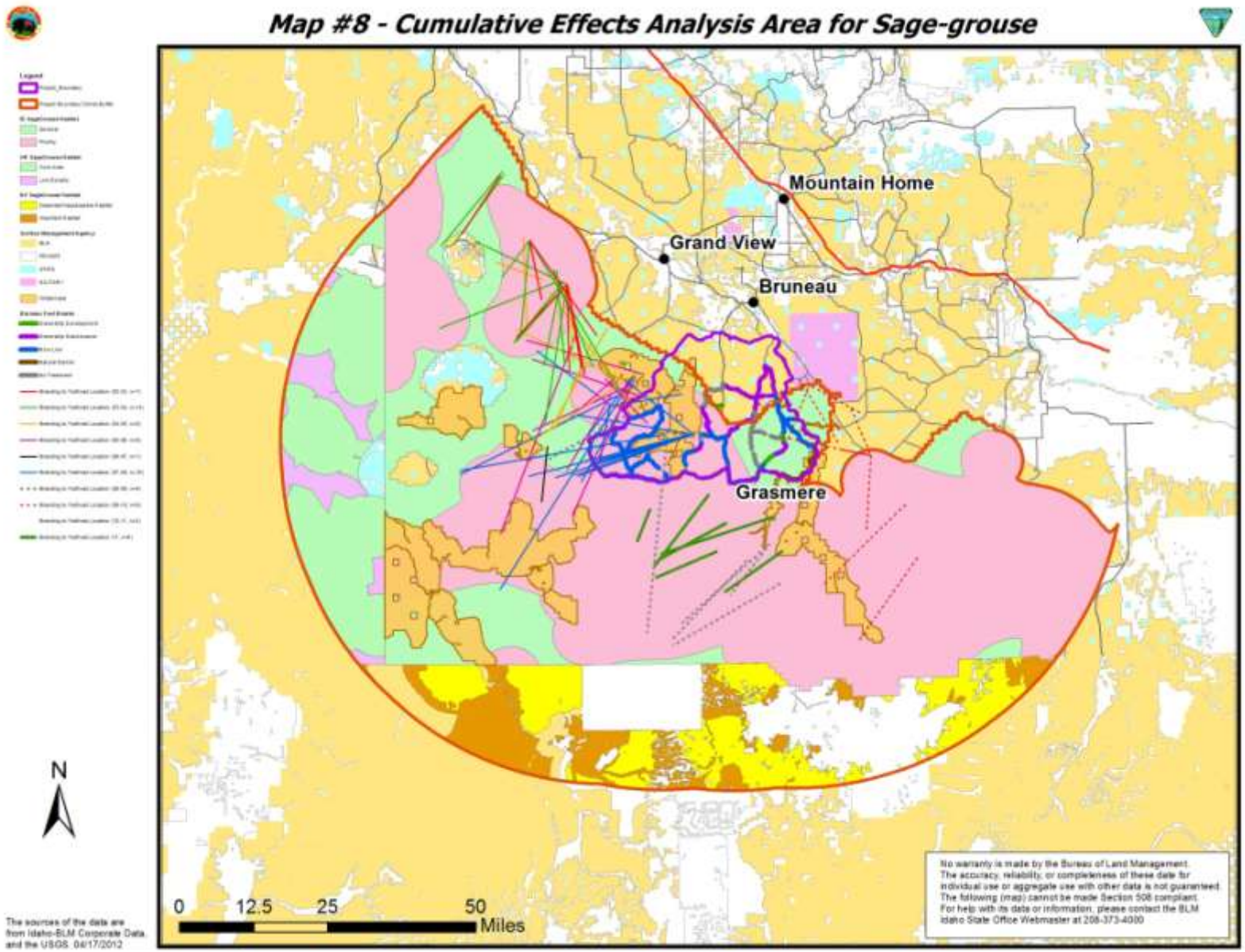


Map #6 - Bruneau Fuel Breaks (Alt C)



Map #7 - Potential for Conversion to Cheatgrass (Alt B)




Map #8 - Cumulative Effects Analysis Area for Sage-grouse
Mountain Home
Grand View
Bruneau
Grasmere
N
0
12.5
25
50
Miles
The sources of the data are from Idaho-BLM Corporate Data and the USGS. 04/17/2012
No warranty is made by the Bureau of Land Management. The accuracy, reliability, or completeness of these data for individual use or aggregate use with other data is not guaranteed. The following (map) cannot be made Section 508 compliant. For help with its data or information, please contact the BLM Idaho State Office Webmaster at 208-373-4000

7.0. Appendices

7.1 Glossary of Terms

Anchor Point - An advantageous location, usually a barrier to fire spread, from which to start constructing a fireline. The anchor point is used to minimize the chance of being flanked by the fire while the line is being constructed.

Backfiring - A tactic associated with indirect attack, intentionally setting fire to fuels inside the control line to slow, knock down, or contain a rapidly spreading fire. Backfiring provides a wide defense perimeter and may be further employed to change the force of the convection column. Backfiring makes possible a strategy of locating control lines at places where the fire can be fought on the firefighter's terms.

Chain - Unit of measure in land survey, equal to 66 feet (20 meters) (80 chains equal 1 mile). Commonly used to report fire perimeters and other fireline distances, this unit is popular in fire management because of its convenience in calculating acreage (e.g., 10 square chains equal one acre).

Direct Attack - Any treatment applied directly to burning fuel, such as wetting, smothering, or chemically quenching the fire, or by physically separating the burning from unburned fuel.

Fire Front - The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified, the fire front is assumed to be the leading edge of the fire perimeter.

Fire Intensity - The rate of heat release per unit time per unit length of fire front. Numerically, it is the product of the heat yield, the quantity of fuel consumed in the fire front, and the rate of spread.

Flaming Front - That zone of a moving fire where the combustion is primarily flaming.

Flame Length - The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface); an indicator of fire intensity.

Fuel Bed - An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also, commonly used to describe the fuel composition.

Fuel Bed Depth - Average height of surface fuels contained in the combustion zone of a spreading fire front.

Fuel Loading - The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually dry weight.

Fuel Model - Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Haines Index - An atmospheric index used to indicate the potential for wildfire growth by measuring the stability and dryness of the air over a fire. The index can range between 2 and 6, with 6 indicating a very dry and unstable atmosphere with high potential for wildfire growth.

Indirect Attack - A method of suppression in which the control line is located some considerable distance away from the fire's active edge. Generally, conducted in a fast-spreading or high-intensity fire to utilize natural or constructed firebreaks, fuelbreaks, and favorable breaks in the topography. The intervening fuel is often backfired, but occasionally, depending on conditions, the main fire is allowed to burn to the line.

Mid-flame Wind Speed - The speed of the wind measured at the midpoint of the flames, considered to be most representative of the wind speed affecting fire behavior.

Particle Size - The size of a piece of fuel, often expressed in terms of size classes.

Rate of Spread - The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually, it is expressed in chains or acres per hour for a specific period in the fire's history.

7.2 Monitoring Plan

Bruneau Fuelbreak Monitoring Plan

Effectiveness monitoring would be conducted at regular intervals in treated areas to determine whether vegetation conditions achieve the identified "decision criteria". The monitoring would be completed using a standard interagency monitoring tool called FFI (FEAT/FIREMON Integrated). The methods described below adhere to established FFI guidelines and would address most objectives pertaining to various fuel break treatments, including mowing, vegetative "green" strips, and disked or bladed "brown" strips. Monitoring results should give sufficient data, to aid in creating fuel models for fire behavior modeling software, to illustrate fire behavior characteristics of the fuel break treatment and the adjacent fuel bed.

Based on decision criteria, vegetation characteristics to be measured would include, but not be limited to:

- average brush height and percent canopy cover
- height, density, and species composition of all species
- presence/density/spread of cheatgrass or other invasive species of concern in the treatment area
- percent ground cover

Permanent transects would be established where conditions are representative of the various prescribed treatments in the project area. At these locations, a witness post would be placed at the treatment area's interior edge to permanently mark the monitoring site. To eliminate potential impacts to transects from post placement, the post would be located a minimum of five meters away from the transects' start points. Two transects would be established at the monitoring location, one inside the treatment and one outside. A 100-meter transect would be located within the treatment area and run parallel with the treatment. Data collected along this transect would document species diversity, invasive species density, and brush data. A second 100-meter transect would be located outside of the treated area and run perpendicular to the treatment. Data from this transect would document impacts to the untreated areas from the treatment, including species drift and bare ground. Additionally, Universal Transverse Mercator (UTM) coordinates will be recorded for both the start and end points of each transect so that transects may be repeated in subsequent years.

Information recorded along transects would depend on the monitoring objectives identified in the decision. It would include, but not be limited to, plot description, location, and photographs. For greater information, line and point intercept and density data would also be collected. All data would be recorded using the methods found in *Monitoring Manual for Grasslands, Shrubland, and Savanna Ecosystems, Volume 1*: (USDA-ARS Jornada Experimental Range).

Plot Description

Record general information related to the macro plot (i.e., plot number, date, UTM, elevation, aspect, slope, etc.)

Photo Points

A landscape view photograph would be taken at both the start point looking toward the end point and a photo of the first plot (5 meter mark). A photo-card will be included in each photograph with the following information:

- project name
- date
- plot identifier
- start-point UTM
- direction or bearing of transect

Point Intercept

Cover, height, and species composition would be collected as point intercept data at two meter intervals along the 100 meter transect, for a total of 50 points.

Density

Density of all species would be recorded using a 1 meter x 1 meter nested plot frame at 20 meter intervals along the 100 meter transect, for a total of five plots. Density data would be used to determine species density and composition.

Line Intercept

Canopy cover and height will be measured along the length of each transect.

Below is an example of the data sheet that would be used to evaluate the effectiveness of fuel breaks.

Fuel Break Effectiveness Monitoring Data sheet

BLM District:_____ Field Office:_____ Date:_____

Data collected by:_____ Date of Fire:_____

Fire Name:_____ Location:_____

UTM/Lat Long: Lat/N_____ Lat/E_____

Time Fire was Reported:_____ Time Personnel Arrived on Scene:_____

Initial Size Estimate:_____ Total Acreage Burned:_____

Fuel Type:_____ Fire Behavior:_____

Observed Weather

Wind Speed and Direction:_____ Humidity:_____ Precip:_____ Temp:_____

Fuel Break

Fire behavior when fuel break was encountered:_____

_____

Fire behavior within fuel break:_____

_____

How was fuel break utilized:_____

_____

Was the fuel break effective in slowing the advance of the wildfire:_____

_____

Did the fuel break enhance firefighting safety and capability:_____

_____

Was a backfire initiated and did the fuel break improve the operation:_____

_____

7.3 Special Status Wildlife Species

Special Status Species for the Bruneau Field Office and likelihood of occurrence in the Bruneau Fuel Breaks Project Area (PA).

Species (Status[1]/Type[2])	Key Habitat Associations	Probability of Occurrence	Rationale
Mammals			
California Bighorn Sheep *Ovis canadensis californicus* (S/3)	Rugged desert canyonlands and mountains in sagebrush steppe/grassland habitat	Documented	Species exists in canyon areas within PA.
Kit Fox *Vulpes velox* (S/4)	Open desert and greasewood, sagebrush habitat south of the Snake River	Documented	Species is considered scarce in Idaho but sightings have occurred near or in PA.
Pygmy Rabbit *Brachylagus idahoensis* (S/2)	Tall dense stands of big sagebrush in deep loamy or sandy-loam soils (USFWS 2010b).	Documented	Likely exists where habitat conditions are met within PA.
Spotted Bat – *Euderma maculatum* (S/3)	Roosting: cracks and crevices in cliffs Foraging: xeric shrublands, some needleleaf forests, lava, and vegetated lava cover types (	Documented	Canyon areas provide suitable roosting habitat and there is suitable foraging habitat in PA.
Townsend's Big-eared Bat - *Corynorhinus townsendii* (SSC, S/3)	Roosting/hibernation: caves, abandoned mines, buildings, bridges, rock crevices, and hollow trees Foraging: mesic and xeric shrublands, forest uplands, most needleleaf forests	Documented	Canyon areas provide suitable roosting habitat and there is suitable foraging habitat in PA.
Wyoming Ground Squirrel *Spermophilus elegans nevadensis* (S/4)	Variety of sagebrush plains and grassland habitats such as meadows, valley bottoms, foothills, cultivated fields, and rocky slopes	Likely to Occur	The species has been documented near the PA and suitable habitat is present in PA.
Birds			
American White Pelican – *Pelecanus erythrorhynchos* (S/2)	Inland shallow lakes, marshes, rivers. Breeds on isolated islands (Ehrlich et al. 1988)	Not Likely to Occur	No suitable habitat within PA.
Bald Eagle – *Haliaeetus leucocephalus* (BGEA/2)	Rivers, lakes, and reservoirs. Usually nests in snags (Ehrlich et al. 1988)	Not Likely to Occur	Limited suitable habitat within PA.
Black-throated Sparrow – *Amphispiza bilineata* (S/3)	Open areas with scattered shrubs and trees including deserts and semi-desert grasslands (Ehrlich et al. 1988)	Likely to Occur	Suitable habitat is present in PA.
Brewer's Sparrow – *Spizella breweri* (S/3)	Closely associated with sagebrush preferring dense stands broken up with grassy patches (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Calliope Hummingbird - *Stellula calliope*	Riparian forests, willow and alder thickets,	Not Likely to	Limited suitable habitat within PA.

Species (Status[1]/Type[2])	Key Habitat Associations	Probability of Occurrence	Rationale
(S/3)	mountain shrub, montane forests (Ehrlich et al. 1988)	Occur	
Columbian Sharp-tailed Grouse – *Tympanuchus phasianus columbianus* (S/3)	Grass and grassland–shrub habitats (Ehrlich et al. 1988)	Not Likely to Occur	Not known to occur within PA and limited distribution in the region.
Ferruginous Hawk – *Buteo regalis* (S/3)	Arid to semi-arid regions, grasslands and agricultural areas (Ehrlich et al. 1988)	Likely to Occur	Suitable habitat is present throughout PA.
Golden Eagle – *Aquila chrysaetos* (BGEA/2)	Open habitats such as sagebrush. Usually nests on cliff faces but will use power poles or snags (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Greater Sage-grouse – *Centrocercus urophasianus* (C/1)	Sagebrush, sagebrush steppe, riparian areas (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Lewis Woodpecker - *Melanerpes lewis* (S/3)	Open woodland and forests, including riparian woodland (Ehrlich et al. 1988)	Low	Limited suitable habitat within PA.
Loggerhead Shrike – *Laniu ludovicianus* (S/3)	Short grass, sagebrush patches with isolated trees (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Mountain Quail - *Oreortyx pictus* (SSC, S/3)	Overgrown clearings in montane coniferous forests (Ehrlich et al. 1988)	Not Likely to Occur	Limited suitable habitat within PA and thought to be extirpated from the region.
Northern Goshawk - *Accipiter gentilis* (S/3)	Forests, forest edges, open woodlands (Ehrlich et al. 1988)	Not Likely to Occur	No suitable habitat within PA.
Peregrine Falcon – *Falco peregrines* (S/3)	Wide variety of habitats including forests and deserts. Usually nests on cliffs. (Ehrlich et al. 1988)	Moderately Likely to Occur	Species was observed near PA.
Prairie Falcon – *Falco mexicanus* (S/3)	Open habitat in mountainous regions, shortgrass prairie, alpine tundra (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Sage Sparrow – *Amphispiza belli* (S/3)	Sagebrush obligate that needs large continuous stands of sagebrush or sage steppe (Ehrlich et al. 1988)	Documented	Species has been documented in PA.
Trumpeter Swan *Cygnus buccinator* (S/3)	Lakes, ponds, marshes, sluggish rivers with emergent vegetation (Ehrlich et al. 1988)	Not Likely to Occur	No suitable habitat within PA.
White-faced Ibis *Plegadis chihi* (S/4)	Marshes, swamps and wetlands (Ehrlich et al. 1988)	Not Likely to Occur	No suitable habitat within PA.
Willow Flycatcher – *Empidonax trailii* (S/3)	Riparian thickets, especially willows (Ehrlich et al. 1988)	Not Likely to Occur	Limited suitable habitat within PA, but it may be found in canyon areas with thick riparian cover.

Species (Status[1]/Type[2])	Key Habitat Associations	Probability of Occurrence	Rationale
Yellow-billed Cuckoo – *Coccyzus americanus* (C/1)	Open woodland with dense undergrowth, riparian woodland and thickets (Ehrlich et al. 1988)	Not Likely to Occur	Limited suitable habitat within PA, but it may be found in canyon areas with thick riparian cover.
Reptiles			
Common Garter Snake - *Thamnophis sirtalis* (S/3)	Usually found near water and swims readily (IDFG 2004)	Moderately Likely to Occur	Species was observed near PA.
Longnose Snake – *Rhinocheilus lecontei* (S/3)	Upland habitat with sandy to sandy loam soils with a shrub and forb component (IDFG 2004)	Not Likely to Occur	Not known to occur in PA.
Great Basin Collared Lizard – *Crotaphytus bicinctores* (S/3)	Lower elevation rocky canyon with sparse vegetation, strongly associated with rock cover (IDFG 2004)	High	Species has been documented in PA.
Western Ground Snake – *Sonora semiannulata* (S/3)	Desert habitats with loose or sandy soils (IDFG 2004)	High	Species has been documented in PA.
Amphibians			
Columbia Spotted Frog *Rana luteiventris* (S/1)	Marshy edges of ponds and lakes or near the edges of slow moving streams (IDFG 2004)	Likely	Species has been documented near the PA.
Northern Leopard Frog – *Rana pipiens* (S/2)	Marshes and wet meadows from low valleys to mountain ridges (IDFG 2004)	Not Likely to Occur	Limited suitable habitat within PA.
Western Toad - *Bufo boreas* (S/3)	Ephemeral pools and streams, all upland habitats (IDFG 2004)	Documented	Species has been documented in PA.
Woodhouse Toad – *Bufo woodhousii* (S/3)	Lower elevation habitats, sagebrush desert, woodlands, grasslands, farmlands (IDFG 2004)	Low	Species has not been documented within or near PA.
Fish			
Bull Trout – *Salvelinus confluentus* (T/1)	Cold water streams and rivers with complex habitat and with lots of large woody debris	The Bruneau River is designated Critical Habitat	Habitat is east of the PA boundary. Treatment areas are at least 800’ from Bruneau River.
Redband Trout - *Oncorhynchus mykiss gibbsi* (S,SSC/2)	Found in many streams and rivers throughout southwest Idaho.	Documented	Species has been documented in PA.
Invertebrates			
Bliss Rapids Snail – *Taylorconcha*	Cobble boulder substrate in water temperatures	Not Likely to	Outside the documented range of the

Species (Status[1]/Type[2])	Key Habitat Associations	Probability of Occurrence	Rationale
serpenticola (T/1)	between 59 – 61 degrees Fahrenheit in cold water springs and spring-fed tributaries to the Snake River and in some reaches of the Snake River	Occur	species.
Bruneau Dunes Tiger Beetle *Cicindela waynei waynei* (S/2)	Only known to occur at Bruneau Dunes State Park and one site just east of the park. Occurs primarily in the sparsely vegetated margins of sand dunes.	Not Likely to Occur	Outside the documented range of the species.
Bruneau Hot Springsnail *Pyrgulopsis bruneauensis* (S/1)	Warm water springs in Hot Creek and along an 8 mile stretch of the Bruneau River	Documented near PA	Habitat borders short section (< 8 miles) of the north-eastern PA boundary.
California Floater *Anodonta californiensis* (S/3)	Lakes and large streams at lower elevations in areas with soft substrates and relatively slow currents	Not Likely to Occur	Not known to occur in PA.
Columbia Pebblesnail *Flumincola fuscus* (S/3)	Gravel and boulder substrates in small to large rivers with cold, highly oxygenated and unpolluted waters.	Not Likely to Occur	No suitable habitat within PA.
Shortface Lanx *Fisherola nuttalli* (S/2)	Gravel and boulder substrates in swift highly oxygenated water of large rivers	Not Likely to Occur	Outside the documented range of the species.
Snake River Physa Snail *Physa natricina* (S/1)	Confined to the Snake River and distributed over 300 river miles (RM) from Ontario, OR, (RM 368) to just below Minidoka Dam, ID, (RM 675). Found in swift current on sand to boulder substrate.	Not Likely to Occur	Outside the documented range of the species.
Utah Valvata Snail *Valvata utahensis* (S/2)	Exist in the Snake River from RM 585 just below Thousand Springs Reserve to RM 837 at the confluence of the S. Fork and Henry's Fork of the Snake River. Also found in Box Canyon Creek and the Big Wood River ID. Can exist in reservoirs, springs and riverine habitat.	Low	Outside the documented range of the species.

1 = Status SSC - State of Idaho Species of Special Concern, S - BLM Sensitive Species, C - Candidate Species,

2 = Type – **1** is Federally Threatened or Endangered Proposed or Candidate Species, **2** is Rangewide/Globally Imperiled Species: Includes species with a high likelihood of being listed under the ESA in the foreseeable future due to their rarity and/or significant endangerment factors, **3** is Regional/State Imperiled Species: Includes species that are experiencing declines in population or habitat and are in danger of regional or local extinctions in Idaho in the foreseeable future, **4** is Peripheral Species; Includes species in Idaho that are generally rare in Idaho with the majority of their breeding range outside the state.